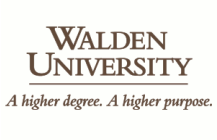

2019

Characteristics of Young People Seen in the Emergency Department for Assault-Related Injuries

Robyn Coons
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This is to certify that the doctoral study by

Robyn Coons

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Jirina Renger, Committee Chairperson, Public Health Faculty
Dr. Larissa Estes, Committee Member, Public Health Faculty
Dr. Richard Palmer, University Reviewer, Public Health Faculty

The Office of the Provost

Walden University
2019

Abstract

Characteristics of Young People Seen in the Emergency Department for Assault-Related Injuries

by

Robyn Coons

MSW, Adelphi University, New York, 1991

BSW, Loma Linda University, California, 1990

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Public Health

Walden University

August 2019

Abstract

Violence is among the most serious threats to the health and safety of young people between the ages of 10 and 24 in the United States. The purpose of this cross-sectional quantitative study using secondary data from the CDC's 2015 National Hospital Ambulatory Medical Care Survey (NHAMCS) dataset was to examine the characteristics (age, sex, race and ethnicity, insurance or payer source, and housing status) of young people between the ages of 10 and 24 who seek medical care for assault-related injuires through the emergency department (ED). The social ecological model was used to examine the complex interplay between individual, relationship, community, and societal factors, which allows for a better understanding of the range of factors that put people at risk for or protect them from being a victim of or engaging in violence. Chi-square and logistic regression with clustered robust standard errors was used to analyze the differences and the relationships between 6 characteristic variables and the likelihood of ED visits among young people between the ages of 10 and 24 for assault-related injuries. The results of this study provide researchers with a better understanding of the demographics of young people who seek care in the ED for assault-releated injuries. Understanding this population is critical in examining the effectiveness of ED-based youth violence prevention programs. Future research is needed to understand the value and outcomes of exisitng ED-based youth violence prevention programs. Should public health practicioners use these results, positive social change can occur by empowering social norms that value equality, safety, and human rights instead of valuing power over another and the acceptance of violent behaviors as normal.

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Dedication

"This is no time to let down our guard on youth violence. Research demonstrates that appropriate interventions made during or prior to adolescence can direct young people away from violence and toward healthy and constructive lives." RADM David Stacher, USPHS

This doctoral study is dedicated to my husband Michael Coons. I thank you so much for your unfailing love, support, and patience throughout this journey. Your unwavering confidence and sacrifices provided me with the strength to be brave enough to attempt this academic venture which I have succeeded in. Additionally, I would like to dedicate this study to my mother, Barbara Duffy. I am beyond grateful to show you that your investments in my future as a young child were things that you did right and wisely. I hope to always make you proud of my accomplishments. These amazing people have continuously encouraged my academic and life endeavors and I would not have been able to accomplish all that I have without them.

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I would like to acknowledge and express my sincere appreciation to my dissertation committee chair Dr. Jirina Renger, words cannot express my heartfelt gratitude that I have for you. Your positivity, constructive critiques, guidance, and support, at just the right time, helped to encourage and empower me to maintain the drive to keep moving forward in this academic journey. You always knew just the right words to say at the right time, you were one of my biggest cheerleaders and I am so grateful to have had you in my corner. I would also like to thank my dissertation committee member, Dr. Estes, for your endless support, guidance and encouraging words. You were instrumental in helping me develop this study and guiding me all the way to the finish line. Lastly, I would like to thank my university research reviewer (URR), Dr. Richard Palmer, your excellent guidance and feedback added to my success in completing this instrumental academic journey. I am truly thankful and honored to have had three amazing public health and academic leaders in guiding and supporting me while conducting this dissertation.

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Section 1: Foundation of the Study and Literature Review

Introduction

Violence is among the most serious threats to the health and safety of young people in the United States between the ages of 10 and 24 (Matjasko, Massetti, & Bacon, 2016). Violence threatens the lives of millions of people both physically and mentally, overburdens health systems, undermines human capital formation, slows economic and social development, and leaves a damaging effect on families, communities, the healthcare, mental health, and justice systems, and the nation as a whole (Matjasko et al., 2016). According to David-Ferdon, Haileyesus, Liu, Simon, and Kresnow (2018), in 2015 young people aged 10 to 24 years old accounted for 32% (485,610) of approximately 1.5 million patients of all ages who were seen in the emergency department (ED) for unintentional assault-related injuries. The authors further broke the data down by age groups and sex, as shown in the following table.

Table 1

Results by Age Group and Sex Per 100,000

Age group	Sex	Seen in the ED for assault-related injures per 100,000
10 - 14 years	Male and female	267.0
15 - 19 years	Male and female	813.1
20 - 24 years	Male and female	1,138.6
10 - 24 years	Male	914.9
10 - 24 years	Female	583.9

Adapted from", Nonfatal Assaults Among Persons Aged 10–24 Years — United States, 2001–2015" by David-Ferdon et al., 2018, *MMWR Morbitity and Mortality Weekly Report*, 67(5);141–145

EDs are an important societal safety net that provides services to patients who are acutely ill or are unable to obtain medical care through other traditional settings (Hankin, Wei, Foreman, & Houry, 2014). In many communities, EDs are the only providers of medical services for those who are uninsured or under-insured (Hankin et al., 2014). Given this unique role that EDs play in our society, researchers have identified EDs as important sites for screening and prevention of public health problems such as youth violence (Hankin et al., 2014). Although ED staff have been successful in identifying, screening, and making referrals to the Department of Social Services (DSS), Department of Children and Families (DCF) or Elder Services with victims of other forms of violence such as child maltreatment or elder abuse. Routine screening and interventions for

unintentional assault-injured youth seeking ED care is not routinely provided and this service is lacking in this setting (Cunningham et al., 2014).

The youth unintentional assault-related injury research literature includes a considerable body of work highlighting that youth violence is a complex public health problem that is treatable and preventable when addressed with evidence-based violence prevention programs. Young people who are treated in the ED for assault-related injuries are at a higher risk for engaging in patterns of violent behaviors and being seen again for an assault-related injury (Cunningham et al., 2015). To guide the growing ED-based youth violence prevention initiatives and programming, more information is needed to understand the relationship between the characteristics (age, sex, race and ethnicity, insurance or payer source, and housing status) of young people aged 10 to 24 years old who are seen in the ED for unintentional assault-related injuries (Cunningham et al., 2014). Previous researchers have focused more on contributing factors such as substance use, mental illness, firearm carriage and possession, poverty, and recidivism rates among young people between ages 10 and 24 years who are seen in the ED for assault-related injuries and not on the specific personal characteristics that could be drivers of youth violence (Carter et al., 2015; Haider et al., 2014). Although researches have described demographics in their studies such as age, sex, race, insurance type, or living situation, they have not deeply explored the association or relationship between these factors and those young people who are seen in the ED for unintentional assault-related injuries (Cunningham et al., 2014). For example, Hankin et al. (2014) conducted a study to assess the correlation between ED patients' reports of exposure to risk factors for

violence (such as peer group violence, self-assessed risk of future violence, and hostile/aggressive feelings), and repeat visits to the ED for injury complaints. Although these authors described demographic characteristics (sex and ethnicity), they did not explore the association between these factors and those young people seen in the ED for repeat visits due to unintentional assault-related injuries (Hankin et al., 2014).

The purpose of this study was to understand the relationship between demographic characteristics (age, sex, raceand ethnicity, insurance or payer source, and housing status) and young people between the ages of 10 and 24 who are seen in the ED for unintentional assault-related injuries. If EDs are to develop effective youth violence prevention prorams, it is critical to understand who is presenting to the ED with acute viloent injury and what independent characteristics distinguish them from their peers (Monuteaux, Lee, & Fleegler, 2012). Although data from community samples have been used to inform interventions, they cannot replace the need to understand how youth violence differs across subgroups and neighborhoods of young people between the ages of 10 and 24 years who seek health care in the ED for assault-related injuries. With such knowledge, healthcare and social service professionals, particularly ED practioners, would be able to inform and implement sound ED-based interventions that promote long-term stability and resilence, and reduce the impact from youth violence (Cunningham et al., 2014; Monuteaux et al., 2012).

Study Justification

Trauma is considered the number one cause of death for Americans aged 1 to 44 years, and while many of these injuries are unintentional, assault-related and violent

injuries are a significant factor that leads to mortality among young people between the ages of 10 and 24 in the United States (Haider et al., 2014). In fact, homicide is the second leading cause of death for American youth in this age group (Haider et al., 2014). Haider et al. (2014) conducted a study in 2009 and found that 19% of youth who were treated in the ED for assault-related injuries had been treated for similar reasons in the recent past, doubling their risk for death for each return visit to the ED. Given the resource intensive and expensive nature of trauma care in the ED, issues of recidivism are considered serious concerns and pose questions regarding what characteristics of young people are identifiable that impact engagement in violence and can be addressed (Haider et al., 2014). Results from one of the few longitudinal hospital-based studies revealed that 20% of young people admitted to the hospital for an assault related injury would die from homicide in 5 years (Cunningham et al., 2014). Although EDs have been successful in identifying and intervening with victims of other forms of violence, routine interventions for assault-injured young people seeking care in the ED is limited (Cunningham et al., 2014). Since young people who are involved in violent behaviors are more likely to seek medical care in the ED than any other settings, EDs can play an important role in reducing recidivism and on-going violent behaviors (Centers for Disease Control and Prevention [CDC], 2014; Cunningham et al., 2014). Special focus is needed to ensure that culturally competent interventions are available for racial and ethnic groups, are age and sex appropriate, and account for environmental factors such as housing status, payer source for medical care, and social connectivity (Dicker, 2016). Evidence-based research has show that racial, ethnic, age, and socioeconomic factors

impact patterns of childhood diversity and behaviors, yet few evidence-based programs and research exists targeting these specific characteristics of young people who are at risk for engaging in violent behaviors. It is critical that prevention efforts are comprehensive, tailored to each group, and addresses all levels that influence young people to engage in violent behaviors (Slopen et al., 2016). Although there is evidence-based data to support funding for ED-based youth violence prevention programs, the implementation of proven interventions is minimal in most health care settings (Tsai et al., 2016). Sharp et al. (2014) conducted a detailed cost analysis from a health payer perspective that expanded over 1 year to describe the funds necessary to implement and maintain a youth violence prevention program within the ED. The study showed that the startup cost for implementing a youth violence prevention program in an urban ED was estimated at $71,784. The variables the researchers included in the startup expenses included the development of the software program need to direct the intervention, training for current personnel to perform the interventions, and computer hardware. These expenses are onetime expenses and this amount could decline once the program was established. However, the researchers noted that there will be expenses associated with maintenance such as ongoing training of personnel, training of new personal, and the potential need to hire a social worker specifically to oversee and run the program (Sharp et al., 2014). It is important to note that ED-based prevention programs are estimated to prevent around 4,208 violent events or consequences, with a savings of around $3.63 to $54.96 per event or consequence averted (Sharp et al., 2014). When looking at national ED visits, the average cost is around $1,349; however, for people between the ages of 10 and 24 who

are seen in the ED due to a firearm injury, the cost is around $3,642, and if admitted to the hospital the cost is around $70,164 (Sharp et al., 2014). If the program averts just one firearm-related admission each year, it could cover the cost of the program (Sharp et al., 2014). Sharp et al.'s (2014) cost analyses indicated that the implementation of a youth violence initiative in the ED is less than the cost of placing an intravenous line and should not present a considerable barrier to implementing programs in this setting. ED-based youth prevention programs have proven not only to be cost effective, but also to impact behavioral change for at risk young people (Sharp et al., 2014). Therefore, ED youth violence prevention programs may hold further economic benefits such as improved quality of life throughout the lifecycle, reduced dependency on mental health and substance abuse programs, and reduction in use of the criminal justice system that may have occurred if the violent behaviors were not averted (Sharp et al., 2014).

Currently there are only 35 documented ED-based youth violence prevention programs in operation nationwide, and the extent to which these programs meet the needs of their targeted population remains under researched (Dicker, 2016). In order to guide growing ED-based programs, the existing literature has shown that more information is needed regarding the characteristics that distinguish young people who seek care in the ED for assault-related injuries from their peers (Cunningham et al., 2014). Therefore, I set out to understand the relationship between the characteristics (age, sex, race and ethnicity, insurance or payer source, and housing status) and young people between the ages of 10 and 24 years who are seen in the ED for unintentional assault-related injuries.

Potential for Positive Social Change

Violence prevention is a complex public health problem that involves social, economic, and behavioral components, all of which need to be addressed to improve population health and promote positive social change (Dubow, Huesmann, Boxer, & Smith, 2016). Most young people are on the path to leading healthy, productive, and secure adult lives; however, about 25% of young people are at risk of entering a cycle of violence and delinquent behaviors (Dubow et al., 2016). It is my hope that the study findings will improve professionals' understanding of the relationship between the characteristics (age, sex, race and ethnicity, insurance or payer source, and housing status) and young people between 10 and 24 who are seen in the ED for unintentional assault-related injuries. Better understanding may lead to modification and/or development of public health interventions to promote social norms that value equality, safety, and human rights instead of valuing power over another and the acceptance of violent behaviors as normal. As a result, future public health efforts can be tailored to ensure that all young people who are seen in the ED for assault-related injuries regardless of age, sex, race and ethnicity, insurance or payer source, and housing status are equally represented in youth violence prevention programs intended to promote equitable social change while improving human, social, and community conditions (Benedict, Amanullah, Linakis, & Ranney, 2017).

In the long term, by providing additional evidence-based information that emphasizes the value of reducing youth violence across the nation, the results can be used

to establish stakeholder buy-in, support social policy change, and lead to the development of an effective national model to improve youth public health.

Preview of Major Sections

In the remainder of this section, I discuss the background of youth violence and the characteristics of young people between the ages of 10 and 24 who are seen in the EDs for assault-related injuries to highlight the value of my study. I then introduce the problem statement and purpose of the study. Next, I present the questions that I answered and the hypotheses that I tested in my study. In subsequent pages, I explain my use of the theoretical foundation and briefly discuss the social ecological model (SEM)I used to further understand the characteristics that place young people at risk for or protect them from engaging in violent behaviors. Next, I introduce the nature of the study and discuss its appropriateness for addressing the research problem. I then list the terms and operational definitions of variables as they pertained to my study before moving into a review of the literature. I end this section with a summary and transition to Section 2.

Problem Statement

Youth violence is a significant public health and social problem in the United States (Masho, Schoeny, Webster, & Sigel, 2016). It is the third leading cause of death among young people between the ages of 10 and 24 years old and the leading cause of death for black males in this age group (Masho et al., 2016). The burden of assault-related injures for young people on EDs is significant. Results from a nationally represented study completed by David-Ferdon et al. (2018) revealed that from January through December 2015, young people between the ages of 10 and 24 accounted for

more than 485,610 ED visits for assault-related injuries, and $3.4 billion in associated medical and lost productivity costs. The authors further found that during 2001 through 2015, approximately 9.5 million young people between the ages of 10 and 24 were treated in EDs for assault-related injuries, which is an average annual rate of 1,003.9 per 100,000 (David-Ferdon et al., 2018). Youth violence is a complex and widespread health issue that can affect anyone regardless of backgrounds, ethnicities, and neighborhoods. The burden of violent injuries and deaths on the individual, families, and communities are high, including physical and psychological trauma, prolonged rehabilitation and recovery periods, and financial losses (Williams, Rivera, Neighbours, & Reznik, 2007). The societal impact from violence may even be higher, as violent acts erode communities, incur high costs for direct and indirect medical care, can destabilize political infrastructures, and are a hindrance to improved population health (Williams et al., 2007). There is a wealth of evidence-based research that supports effective strategies that can be implemented to address youth violence with individuals, in the school systems, and within communities. There are also studies that have identified the ED as a critical location for youth violence prevention (Cunningham et al., 2014; Mercy & Vivolo-Kantor, 2016). However, there are limitations in the understanding of the characteristics of young people who seek medical care in the ED for assault-related injuries (Cunningham et al., 2014). Youth unintentional assault-related injury research literature has focused more on the motivational factors that contribute to young people engaging in assault-related behaviors, has included samples that were not specific to young people between the ages of 10 and 24 years or combined results for both violent

and nonviolent injuries, and has involved non-ED based samples such as school-based programs (Cunningham et al., 2014; Monuteaux et al., 2012). To guide the development of ED-based violence prevention programs while also maximizing existing programs potential impact on reducing youth violence, additional information is needed on how youth violence differs across subgroups and neighborhoods of young people between the ages of 10 and 24 years old who seek health care in the ED for assault-related injures (Cunningham et al., 2014; Monuteaux et al., 2012).

Justification for Research Problem Selection

Given the seriousness of youth violence and the fact that young people with assault-related injuries primarily seek care in the ED compared to other settings, the ED is often viewed as an appropriate location to intervene (Purtle et al., 2014). Yet there is a gap in the literature regarding characteristics such as age, sex, race and ethnicity, insurance or payer source, and housing status of assault-injured youth who seek care in the ED (Cunningham et al., 2014). Similar studies focused on non-ED based samples, such as school-based programs, or utilized national data on ED visits resulting from intentional injury that were not specific between young people ages 10 and 24 years (Cunningham et al., 2014; Monuteaux et al., 2012). Additionally, similar studies have solely focused on the relationship between firearm carriage and possession, substance use, mental illness, or recidivism rates among young people who are seen in the ED for assault-related injuries, and not on the specific personal characteristics identified in this study (Carter et al., 2015; Haider et al., 2014). If EDs are going to develop effective youth violence prevention initiatives, then it is critical that there is a better understanding

of the personal characteristics of young people who present to the ED for assault-related injuries and of what modifiable characteristics distinguish them from their peers (Cunningham & Knox, 2014).

Currency and Relevance of the Research Problem

In the United States, public health policy has historically viewed youth violence as a moral or behavioral problem that should be addressed through the use of punishment after the fact (Rabarison, Bish, Massoudi, & Giles, 2015). However, evidence-based research has increasingly indicated that violent behaviors are an interaction between individual, familial, social, cultural, and economic influences, including failures in the developmental process (Matjasko et al., 2016). Prevention science has provided a bridge between scholarly and clinical understanding of how chronic violence develops, and how prevention programs can disrupt the development of violence in young people (Kaulfman et al., 2016). Gaining a better understanding of the specific characteristics that influence violent behaviors or impact recurrent violent injury at a population level is critical for ED clinicial staff in order to identify and intervene with high-risk young people (Kaulfman et al., 2016). Additionally, public health professionals may use the findings of this study to foster public support and justification for use of private, state, and federal funds for the development and sustainability of ED-based youth violence prevention programs throughout the country that are culturally competent and age focused (Creswell, 2014).

Significance of

Youth violence is a global public health problem and, like most public health challenges, it is impacted by the past, plays out in the public eye, affects various

stakeholders, and requires a multidisciplinary approach to control (World Health Organization [WHO], 2016). Violence among young people can range from acts of bullying and fighting, to more sever forms of violence such as sexual and physical assault and homicide (WHO, 2016). Whether the assault is fatal or non-fatal, it significantly contributes to the global burden of premature death, injury, and disability (WHO, 2016). Furthermore, it has serious and often lifelong impact on a person's psychological and social functioning, it aaffects victims' families, friends, and communities, increases the cost of health care, mental health, and criminal justice services, and decreases productivity (WHO, 2016). Researchers have found that young people who are victims of violence are often at an increased risk of becoming repeat victims or perpetrators of violence themselves, and this risk can extend into adulthood (Haider et al., 2014). For example, Benedict et al. (2017) conducted a study where they compared assault-injured youth to unintentionally injured youth because the authors expected the two populations to have similar demographic characteristics and risk factors for injury-related ED visits. Their objective was to (a) determine whether previous ED visit history distinguishes youth presenting for care of an assault-related injury from youth presenting for care of an unintentional injury, and (b) characterize previous ED utilization among assault-injured youth. They hypothesized that assault-injured youth are more likely to have a history of multiple previous ED visits and have distinct utilization patterns when compared to unintentionally injured youth (Benedict et al., 2017). The results from Benedict et al. (2017) study supported their hypothesis that young people who are seen in the ED for assault-injuries are more likely to have a history of multiple previous ED visits.

Supporting the notion that young people who are seen in the ED for violent injuries is thought to be a predictor of both future victimization and perpetration (Benedict et al., 2017).

Violent injury is considered a reoccurring disease and the leading cause of death among young people between the ages of 10 to 24, surpassing cancer, asthma, and HIV. Additionally, an estimated one-third of all assault-injured young people experience another violent injury requiring ED care within 2 years of their initial visit, which is two times the rate of those young people seen in the ED for non-assault related injuries (Cunningham et al., 2015). For each young person who falls victim to homicide, there is an entire lifetime of contributions to families, potential employers, and communities lost. For those young people who are physically and emotionally harmed by violence, the societal and personal impact is felt through lifelong disability struggles, loss of productivity, increased burden to the health and welfare system, and neighborhood demise (David-Ferdon & Simon, 2014). These factors support the notion that violence is a reoccurring disease. Researchers have suggested that youth violence is a preventable public health problem and consider EDs to be a valuable venue for prevention and intervention initiatives (Haider et al., 2014).

Purpose of the Study

The purpose of this quantitative doctoral study was to use a cross-sectional design in order to explore characteristics that increase or mitigate the risk of young people between the ages of 10 and 24 of engaging in violent behaviors at the individual, relationship, community, and societal levels. I used data from the CDC's 2015 National

Hospital Ambulatory Medical Care Survey (NHAMCS), which gathered information from ED patient records and is a publicly available data set accessible on the CDC web site. Violence affects a significant proportion of the population as it threatens the lives of millions of people both physically and mentally, overburdens the health care, mental health and justice systems, undermines human capital formation, and slows economic and social development (WHO, 2016). In this study, I focused on young people between the ages of 10 and 24 who were seen in the ED for assault-related injuries. Specifically, I examined the relationship between age, sex, race and ethnicity, insurance or payer source, and housing status, and the frequency of ED visits among this targeted population. Since my particular interest was to determine whether a certain age group has a higher frequency of being seen in the ED for assault-related injuries, I used age as an independent variable to answer the research questions in order to create more targeted interventions. Researchers have found that many high-risk young people who are vulnerable for violent behaviors tend to utilize the ED as their primary and sole source for healthcare services (Cunningham et al., 2014). Therefore, by evaluating secondary data and existing literature, I sought to identify factors associated with assault-related injuries that can be used to inform and guide the development of future ED-based injury prevention initiatives for young people in this age group. Stakeholders may use the findings to improve existing ED programs in order to enhance the potential impact on violence reduction. Furthermore, in this study, I addressed the existing gaps in the literature on the characteristics of young people between the ages of 10 and 24 who seek

medical care in the ED for intentional injuries in the United States using more recent nationally representative data.

Research Questions and Hypotheses

RQ1: Are there age differences among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_0$1: There are no age differences among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$1: There are age differences among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

RQ2: Are there racial and ethnic differences among young people aged 10 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_0$2: There are no racial and ethnic differences among young people aged 10 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$2: There are racial and ethnic differences among young people aged 10 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

RQ3 ~ Are there differences by housing status among young people aged 10 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex?

$H_0$3: There are no differences by housing status among young people aged 10 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$3: There are differences by housing status among young people aged 10 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

RQ4 ~ Are there differences by insurance or payer source among young people aged 10 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex?

$H_0$4: There are no differences by insurance or payer source among young people aged 10 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$4: There are differences by insurance or payer source among young people aged 10 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

RQ5: What is the relationship between young people's age group (10-14, 15-19, and 20-24). and visits to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex?

$H_0$5: There are no associations between individual's age group and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$5: There is a statistically significant associations between individual's age group and visits to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

RQ6: What is the relationship between race and ethnicity and visit to the emergency department in the United States for assault-related injuries among young people aged 10 to 24 in 2015, after adjusting for sex?

$H_0$5: There are no associations between race and ethnicity and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$5: There is a statistically significant associations between race and ethnicity and visits to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

RQ7: What is the relationship between housing status and visit to the emergency department in the United States for assault-related injuries among young people aged 10 to 24 in 2015, after adjusting for sex?

$H_0$7: There are no associations between housing status and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$7: There is a statistically significant associations between housing status and visits to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

RQ8: What is the relationship between insurance or payer source and visit to the emergency department in the United States for assault-related injuries among young people aged 10 to 24 in 2015, after adjusting for sex?

$H_0$8: There are no associations between insurance or payer source and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$8: There is a statistically significant associations between insurance or payer source and visits to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

Theoretical Foundation of the Study

Theory is a broadly accepted explanation or principle of nature and expressed in a logical form and based on substantial evidence. In science and in scholarship, theory is considered the most reliable form of knowledge. Theory functions in the following three ways in research: it helps to provide a framework regarding why an event has occurred, it guides the exploration of alternative possibilities to the observed pattern(s) and can shape and direct research efforts that point towards likely discoveries through empirical observations (Babbie, 2017). Research is used to increase knowledge, and theory is part of the process by which the knowledge is acquired, corrected, integrated into the overall verifiable results, and used to understand the why, what and how (Babbie, 2017). The

most successful public health programs are developed with an understanding of health behaviors and the circumstances in which they occur. Theories provide the systematic framework to explain behavioral intentions and help to identify information needed to develop effective interventions or strategies to influence behaviors that promote social change (Glanz, Rimer, & Viswanath, 2015). The theoretical framework for this study was the social ecological model (SEM), which researchers have effectively used to understand factors in young people's lives that may place them at risk for or help protect them from experiencing or perpetrating violence (Matjasko, et al., 2016). According to Haggerty, Skinner, McGlynn, Catalano, and Crutchfield (2014), numerous researchers have considered youth violence as a complex behavioral problem that is determined by a dynamic interplay of individual and key social influences on the young person, such as family, peer, school, and community, which further suggests the value in using the SEM for this study.

The SEM was introduced by Bronfenbrenner as a model for understanding human development in the 1970s; it was formalized as a theory later in the 1980s. This framework is based on evidence that individual behaviors are shaped by factors at the following four levels: intrapersonal, interpersonal, community, and public policy (Kilanowski, 2017). The word *ecological* describes the multiple levels beyond the individual. Therefore, the SEM demonstrates that behaviors are not only the result of the knowledge, values, and attitudes of the individual, but also of social influences, including the people with whom they associate, the organizations they belong to, and the communities they live in (Crosby, Ssalazar, & Declemente, 2013). The SEM framework

has been widely used to represent multilevel approaches to areas such as public health promotion, violence prevention, healthy college campuses, tobacco control, and physical activity prevention, to name a few (Kilanowski, 2017). From a youth violence prevention perspective, the high reaching goal is to stop violence before it even starts, and developing prevention initiatives requires an understanding of the factors that influence young people to engage in violence (CDC, 2018b). The SEM framework takes into consideration the complex interplay between individual, relational, community, and societal factors, which allows for a better understanding of the range of factors that put people at risk for or protect them from being a victim of or engaging in violence. The overlapping rings in the SEM illustrate how factors at one level can influence factors at another level. Therefore, this model suggests that in order to prevent violence and produce sustainable prevention efforts over time it is important to act across multiple levels of the model at the same time instead of single interventions (CDC, 2018b).

Key Elements of the Social Ecological Model

The first level explores the biological and personal factors that influence how individuals behave and increase the likelihood of becoming a victim of or perpetrator of violence (CDC, 2018b; WHO, 2018). Some of these factors could be age, educational level, income, history of being a victim of child abuse or neglect, psychological or personality disorders, or history of displaying disruptive behaviors (Sitnick et al., 2018). For example, when a young person displays oppositional or other types of disruptive behaviors, these behaviors can tax parent's management skills which often leads to increased rates of parent - child coercion and various forms of disruptive behaviors as

parents unintentionally model more aggressive strategies to their children in attempts to resolve or obtain obedience from their child (Sitnick et al., 2018). Sitnick et al. (2018), suggest that emotional regulation is a well-established individual risk factor for antisocial and aggressive behaviors that starts as early as preschool age. For example, young people who are less able to regulate their emotions are more prone to be less compliant, more oppositional and aggressive with their interactions with parents, siblings, peers, and other adults. These behaviors are the pathway to increased use of violent behaviors to solve perceived conflicts.

The second level explores relationships that may increase the risk of a young person experiencing or engaging in violence. For example, a young person's closest social circle of friends, family members, and peers can influence their behaviors and contribute to their experiences both positively or negatively (CDC, 2018b). According to Stoddard et al. (2014), parents and family members can provide both risk and protection from young people engaging in violence. If parents and family members have attitudes or behaviors that support aggression or violence, then young people will see this as a normal response and behave in the same manor. Whereas, if parents and family members display a sense of warmth, nurture, and support pro-social coping strategies then young people will be more likely to respond with healthier responses when faced with adversity and less likely to engage in violence. In addition, when there is positive parental presence and monitoring it can help young people avoid the negative consequences of engaging in violence (Stoddard et al., 2014). According to Stoddard et al. (2014), peer influences increase throughout adolescence and peers can either provide negative or

positive influences. For example, associations with violent or delinquent peers can increase the likelihood a young person will engage in violent, delinquent and criminal behaviors. However, associations with pro-social peers can offer positive support, role models for healthy behaviors, and can help young people overcome negative effects of risk exposure (Stoddard et al., 2014; WHO, 2018).

The third level explores settings such as: schools, neighborhoods, workplaces, or recreational programs where social relationships occur or are developed and identifies characteristics of these settings that can influence young people in becoming a victim of or engaging in violence (CDC, 2018b). Young people who reside in disadvantaged neighborhoods are exposed to more community violence, drugs, and firearms which increases their risk of engaging in violence compared to their peers who reside in more advantaged neighborhoods (Stoddard et al., 2014; WHO, 2018). Additionally, neighborhoods where norms and history of adult violence tend to increase rates of youth violence (Stoddard et al., 2014). Lastly, Stoddard et al. (2014) suggest that young people who reside in disadvantaged neighborhoods tend to have fewer opportunities for positive or pro-social role models; therefore, there are fewer opportunities to interact with either adults or peers who reinforce healthy coping strategies and pro-social lifestyle choices.

The fourth and final level in the SEM explores the broad societal factors that create a climate in which violence is either encouraged or inhibited. These factors can include, social and cultural norms that support violence as a tolerable option to address conflict, or support male dominance over women, and economic, educational, and social

policies that maintain socioeconomic inequalities between people (CDC, 2018b; WHO, 2018).

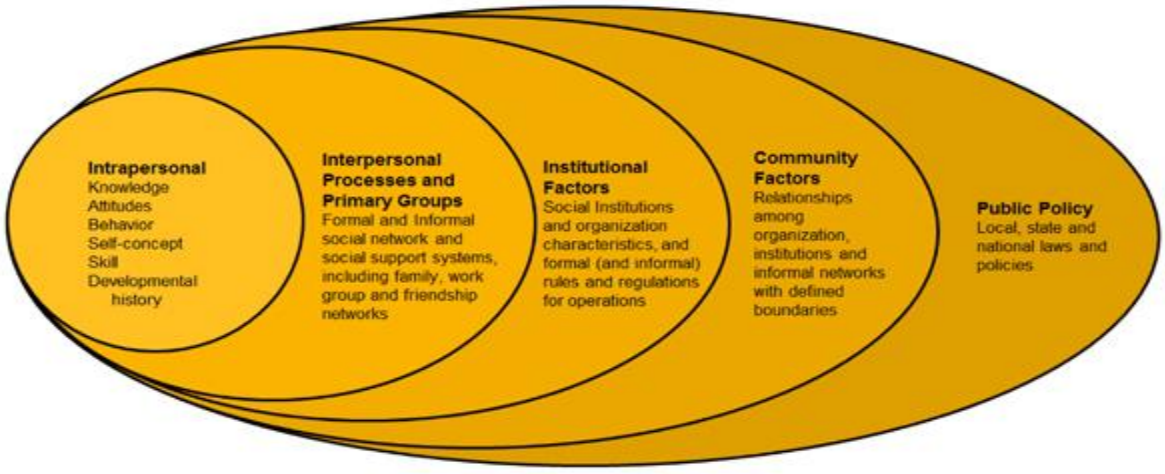

Figure 1. Social ecological model. Adapted from "The social ecology of health promotion interventions." by McLeroy, K., Steckler, A., & Bibeau, D. (Eds.) (1988). *Health Education Quarterly,* 15(4):351-377.

Justification for using the SEM framework

The SEM approach focuses on both population and individual level determinants of health and interventions and considers issues that are community based and not just individually focused. Many interventions that target youth violence are limited by an approach that solely focuses on individual or relationship level factors. Researchers suggest that prevention initiatives should attend to the accumulation of risk factors across multiple levels of the social ecology since youth with multiple factors are more likely to turn to violence compared to those who are exposed to only one risk factor (Matjasko, et al., 2016). Youth violence is not influenced by one factor but by an active

interrelationship among the different levels of health determinants that impact youth over the course of their development. These factors can interact to increase or minimize the likelihood that a young person will engage in violent behaviors regardless of the communities or subgroups they come from (David-Ferdon & Simon, 2014). Although it is important to pay attention to the individual and relationship level factors, exploring the roles that larger socio-cultural, economic, and community factors play in the development of youth engaging in violence is equally important. Especially when attempting to generate a community wide impact on reducing youth violence rates (Matjasko et al., 2016). For example, homelessness is one variable being explored in this study, and researchers suggests that there is an association between homeless youth and family, school and peer closeness (individual, relationship, community and societal levels) (Bantchevska et al., 2008). Providing further justification for the use of SEM, Dubow et al. (2016) conducted a study examining the risk and protective factors for young people engaging in violent behaviors that carried into to their adult years by using the SEM. Their findings suggested that youth violence is affected by factors at the individual, relationship, community and societal levels. For example: the authors found that violence exists due to young people having a history of aggressive behaviors, impulsivity, and other externalization problems (individual level), low socioeconomic status, poor parenting and having parents who were aggressive or antisocial (family level), residing in neighborhoods that have high rates of crime and easy access to drugs, alcohol, or weapons (community level), and socioeconomic inequalities between neighborhoods, lacking resources, or being unsafe (societal level). These findings

provide further validation regarding the importance of developing multifaceted strategies at the individual, family, school, and neighborhood levels to promote sustainable results and increase the likelihood of community-wide reduction in youth violence (Dubow et al., 2016; Matjasko et al., 2016).

Table 2

Variables and research questions identified at each SEM level

Levels	Variables	Research question(s) utilizing these variables
Intrapersonal	Age	RQ1; RQ5
	Race and Ethnicity	RQ2; RQ6
	Sex	RQ1: RQ2; RQ3; RQ4; RQ 5; RQ6; RQ7; RQ8
Interpersonal	Assault-related injury	RQ1: RQ2; RQ3; RQ4 RQ 5; RQ6; RQ7; RQ8
Community	Housing status	RQ3; RQ7
Public Policy	Payer Source	RQ4; RQ8
	Emergency Department Visits	RQ1: RQ2; RQ3; RQ4 RQ 5; RQ6; RQ7; RQ8

Operational Definitions

Youth violence: Occurs when young people between the ages of 10 to 24 intentionally use of physical force or power to threaten or hurt others. Youth violence can take on various forms such as, fighting, bulling, use or threats with weapons, gang related violence, or anti-social behaviors. Further, a young person can be involved with youth violence as a victim, perpetrator, or witness (CDC, 2017).

Aggression: Refers to intentional behavior(s) aimed at causing physical or emotional pain towards other (Finigan-Carr, Gielen, Haynie, & Cheng, 2016).

Young people: The WHO (2018) and CDC (2018a) define young people as an individual between the ages of 10 and 24 years. To remain consistent with the existing literature on youth violence, this study describes the term young person as anyone between the ages of 10 and 24 who are seen in the ED for an unintentional assault-related injury.

Unintentional assault-related injuries: Varying forms of physical harm, injuries, or death, as well as psychosocial harm resulting from exposure to fighting, bullying, threats with weapons, and gang-related violence among young people between the ages of 10 to 24 (David-Ferdon & Simon, 2014).

Socioeconomic status: Is a theoretical construct that incorporates individual, household, and community access to resources. It is also commonly conceptualized as a combination of economic, social, and work status, that is measured by income or wealth, education, and occupation (Psaki et al., 2014). For this study, socioeconomic status is characterized by age, sex, race and ethnicity, insurance or payer source, and housing status.

Race and ethnicity: Race refers to the physical differences that cultures and groups consider socially significant, while ethnicity refers to the shared culture for example, language, practices and beliefs. Race and ethnicity are used to connect the idea of majority and minority groups and social structures of inequality, power, and stratification (Haggerty et al., 2014).

Payer source: Refers to the expected source of payment for the ED visit specifically: Medicaid, CHIP, or other state-based program, private insurance, or no insurance (self-pay, no charge, or charity) (CDC, 2018a).

Housing status: Refers to where the young person was living prior to admission to the ED for an assault-related injury such as: homeless or living with parents or other family members (CDC, 2018a). .

NHAMCS survey: The 2015 National Hospital Ambulatory Medical Care Survey (NHAMCS) is the nation's leading secondary dataset where findings are based on the most current nationally representative data on hospital ED visits in the United States. A total of 457 hospitals were selected to participate in the 2015 NHAMCS, 377 were in scope and had an eligible ED, and 267 ED's participated and responded nationwide (CDC, 2018a). The above mentioned definitions are aligned with how these variables are used in the in NHAMCS survey.

Assumptions

I made the following assumptions in this study:

1. The 2015 NHAMCS dataset is the nation's leading secondary dataset where findings are based on the most current nationally representative data on hospital ED visits in the United States. As a result, this increases the quality of the data, reduces potential bias, and is representative of those who are seen in the ED's for assault-related injuries throughout the United States (CDC, 2018a).

2. I assumed that the 2015 NHAMCS dataset is free from methodological errors as a result of NHCS efforts o ensure the data was cleaned and all missing data was corrected before making the dataset public also reduces the potential to bias the results.
3. All hospital staff selected to extract the information from the participating hospitals patient records received the same training from the Census Bureau filed representative which ensured that they all staff extracted the data from the patient files and transmitted the data with accuracy and consistency. As a result, the data collected will be consistent across the board and are weighted to produce national estimates.
4. All data received from patients is accurate and truthful.
5. The 2015 NHAMCS public dataset was derived from a sample of 377 hospitals that operate with a 24-hour ED. The 2015 NHAMCS data was collected from 267 of these participating hospitals with the assumption that each hospital adhered to the guidelines established by the CDC working through individual state Health Departments.
6. I assumed that all information for the 2015 NAHMCS dataset was collected in a manner that protected patient confidentiality and identity.

Limitations of the Study

The following limitations of this study are hereby acknowledged:

1. This study uses secondary data for analysis; therefore, the available data was not collected to address this particular study's research questions.

2. Those seen in the ED for assault-related injures may differ systematically in some way from those in the sample who were seen for some other medical reason.
3. There is the potential for misclassification of patients for example, the reason for the ED visit was recorded incorrectly or the individual was not truthful about the cause of their injury.
4. Hospitals that were chosen to participate in the survey could be systemically different in some way compared to hospitals that declined to participate. As a result, the survey may not capture EDs with higher rates of assault-related injuries or they may not be true representation socioeconomic factors.
5. There are most likely more people who have assault-related injuries who do not go the ED and there may be a difference between those who do seek out care in the ED.
6. Federal, military, and Veterans Administration hospitals are not part of the nationally representative sample of hospitals; therefore, the assumption is that the 2015 NHAMCS dataset does not include data from these EDs (CDC, 2018a).

Scope and Delimitations

This study is based on the 2015 NHAMCS public dataset which is the nation's leading secondary dataset that gathered information regarding patients demographics, reason for hospital visit, mode of transportation to the hospital, payer source, vital signs, injury type, whether the injury was due to an assault or accidental, diagnosis, what

diagnostic testing was completed, medication and immunization, what procedures were completed, vitals at discharge, what providers saw the patient during the visit, if patient was placed in observation status or admitted to the hospital, and discharge disposition, plan and diagnosis (CDC, 2018a). This study will exclude all variables except the following six: age (10 - 24), race and ethnicity, residence, payer source, sex, and whether the injury was related to an injury/trauma. The dataset however, does not include certain variables such as prior ED visits for assault-related injuries, education, whether or not parents are active duty or a Veteran, or more specific information regarding housing options. These variables and other potential control variables may not be included in the statistical analysis. Given that this study utilized secondary data, there was no primary data collection, contact with ED patients, hospital staff that extracted and uploaded the data, or patient records. As a result, it delimited this study to information collected during the initial survey collection. All private and protected information (name, specific home address, hospital, ED visit date) was removed prior to the dataset being made public. Therefore, follow-up of survey participants to confirm any relevant medical history, demographics, past or current history of violent behaviors would not be feasible given that all personal identifiers were removed from the dataset.

Literature Review

In this literature review, I worked to identify peer-reviewed articles and academic works that addressed the characteristics of young people between the ages of 10 and 24 who sought medical care for assault-related injuries through the ED. I also considered overlapping themes and relevance to the independent and dependent variables, and the

theoretical foundation. My literature search strategy was to identify research relevant to the topic of this study that could be used to help answer the research questions by using electronic library databases, government publications, various search engines, and textbooks from 2010 to 2018. The search for *youth assault-related injury and ED visits* from 2013 to 2018 only yielded 13 studies in the United States; therefore, the review period was extended to 2010 to 2018. As a result, I was able to identify an additional 21 studies that utilized the variables specific to my study. I used various websites and research databases to locate peer reviewed articles such as ProQuest Nursing and Allied Health Source, National Institute of Health (NIH), JAMA Pediatrics, PsycINFO, MEDLINE, National Network of Hospital Based Violence Prevention Interventions (NNVIP), and PubMed. Google, Google Scholar, and Semantic Scholar were the primary search engines used throughout the literature review. Additional information was obtained through government publications such as those by the CDC and WHO. Secondary data were obtained by using the CDC's 2015 NHAMCS. I obtained additional information to support the theoretical framework and to identify appropriate statistical tests for this research study through textbooks acquired during course work.

Carter et al. (2016) examined the efficacy of a universally applied Project Sync brief intervention (BI) program that addressed violence behaviors among young people (10 to 24) who presented to the Hurley ED, located in Flint Michigan for assault-related injuries. Participants were assigned to either receive the 30-minute therapist-delivered Project Sync BI program within the ED prior to either hospital admission or discharge, or receive just a resource brochure (control group). Project Sync BI is a combination of

motivational interviewing and cognitive skills training that reviews the young person's goals, has tailored feedback, decisional balance exercises, role-playing exercises, and linkage to community resources (Carter et al., 2016). These authors had the participants complete a survey at baseline and again at a 2-month follow-up assessment. The main outcomes assessed were self-report of physical victimization, aggression, self-efficacy to avoid fighting, and repeat visits to the ED for assault-related injuries (Carter et al., 2016). Results from this study showed that the Project Sync BI program was effective in reducing violent aggression, increased self-efficacy for avoiding fighting, and decreased recurrent ED admissions for assault-related injuries among a universal sample of youth seeking ED care for assault-related injuries (Carter et al., 2016). Carter et al. (2016) further found that this program was well received by those young people who participated, there was a low refusal rate, and 86% of young people rated the intervention as very or extremely helpful. This further validates that young people in high-risk neighborhoods or have a prior history of violence are willing to discuss ways to minimize their future violence risk and learn alternative coping strategies. The noted improved violence outcomes may have contributed to the combination of increasing the young persons' motivation for behavioral change and providing them with healthy skills for avoiding violent situations, non-violent conflict resolution, and anger management (Carter et al., 2016). These findings support the value that an EDs play in reaching young people who are at risk for violence and reducing violence in our communities.

Search Terms

I used the following terms for the literature search: *characteristics of young people seeking medical care in the ED for assault related injuries, homelessness, outcomes of ED based youth violence prevention programs, youth violence, prevention, SEM, income inequality and youth violence, socioeconomic differences, repeat victims of violence, ED, age, sex, income, payer source, personal risk factors for youth violence,* and *ethnicity and race.* My main focus was on articles, studies, and reports that were published in English between 2010 and 2018. I located seminal articles and studies by using an open-ended search without date restrictions. The time frame selected provided studies that to my knowledge provided the most resent information regarding instrument tools, data, and information that can be used to support the outcome of this study. In the following subsections, I have organized the literature review by key variables and concepts.

Sex

Bushman et al. (2018) considered sex as a risk marker for youth violence. These authors suggested that, across the lifespan, males tend to be more physically aggressive and violent compared to females, and the most dramatic difference occurs in late adolescence and young adulthood (15 to 24) in which they commit the vast majority of homicides. There are many factors associated with sex that likely contribute to this difference; however, biological difference and perceptions of control or power that are associated with masculinity norms are considered contributing factors (Bushman et al., 2018). Finigan-Carr et al. (2016) examined the motivational factors for engagement in

violent or aggressive behaviors between males and females. These authors found that boys and girls report overt differences in their motivational factors. Boys tend to engage in violent or aggressive behaviors for personal gain of power, influence, or economic gains. While girls tend to engage in violent or aggressive behaviors when dealing with relationship issues with peers and romantic partners, peer pressure or by being instigated by outsiders, and family arguments. Girls may also react aggressively in verbal exchanges, situations that threaten their self-esteem, in self-defense, or when sexual mixed messages cultivate conflict (Finigan-Carr et al., 2016). These authors also found differences in the severity of violence and aggressive behaviors between the different sexes. Boys tend to use more physical, lethal, and threatening behaviors such as hitting, punching, and use of weapons, yelling, and verbal threats with intent to inflict physical harm. While girls' aggressive or violent behaviors are intended to damage someone's friendship, feelings, or inclusion in a group through gossiping, spreading rumors, or preventing friendships. In addition, these authors found that girls reported more distress and remorse when engaging in violent behaviors compared to boys (Finigan-Carr et al., 2016).

Finigan-Carr et al. (2016) suggested that friends in early adolescence are important in the development of beliefs, attitudes and behaviors regarding the use of violent and aggressive behaviors, and further noted the association between peer fighting and individual violent behavior(s). The results of their study showed that when young people are exposed to peer pressure, girls tend to react violently in response to power struggles around boys or when dealing with conflict. Boys tend to strive for

independency by fighting to assert themselves while girls tend to fight to seek out approval or prove their worth as women (Finigan-Carr et al., 2016).

Overall, it appears that for both males and females, violence tends to be used as a vehicle to gain status and recognition by demonstrating toughness, protect oneself or others, claim and assert power, build self-esteem, and obtain emotional rewards and economic status (Finigan-Carr et al., 2016; Resko et al., 2016). Although youth violence has traditionally been considered a problem among boys, Resko et al. (2016) suggested that violence research and prevention efforts are recognizing that girls are increasingly displaying aggressive and violent behaviors and closing the gap between males and females. Specifically, Resko et al. (2016) found that around one-quarter to one-third of females ages 14 to 18 years reported having been in a serious fight in the past 12 months, and almost half of ED visits for assault-related injuries were among females between the ages of 10 and 24. Ranney et al. (2011) examined the differences between males and females seeking medical care through the ED for assault-related injury. These authors found that around one-third of ED visits for assault-related injuries were among females between the ages of 10 and 24 years, and also noted no difference between males and females in self-report history of peer aggression, assault-related injuries, substance use and weapon-carriage (Ranney et al., 2011). One interesting finding from this study was that 95% of females seen in the ED for assault-related injury reported living on their own or with someone else compared to 84% of males who reported living at home with their parents. In addition, the rates of depressive symptoms were twice has high among females who were seen in the ED for assault-related injuries compared to males (Ranney

et al., 2011). As previously stated, known risk factors for both violence or aggressive behaviors and depression include low self-esteem, indifference to personal safety, and the inability to regulate emotional response to stressful interventions. Females between the ages of 10 and 24 tendencies toward depressive symptoms may contribute to their risk for assault-related injuries and the need for medical services in the ED (Ranney et al., 2011). Not only does this study support the notion that the gap is closing between males' and females' seeking of medical care in the ED for assault-related injuries. It also provides valuable information that has the potential to guide interventions that can prevent both violence and mental health sequelae of violence using a tailored approach to address both males and females. By drawing on the males and females personal accounts and etiology behind their aggressive and violent behaviors, researchers are able to better understand the complexity and heterogeneity of male and females violence. Addressing the sex specific reasons and perceived benefits associated to using violence and aggressive behaviors more effective and tailored interventions can be established for this population in the ED setting (Finigan-Carr et al., 2016).

Housing Status

Individuals and relationships are rooted in settings such as neighborhoods, homes/places of residence, schools, and workplaces. The characteristics of these settings have the potential to influence how young people interact with each other including the use of violent and aggressive behaviors (David-Ferdon & Simon, 2014). Homelessness is connected with a significant amount of health inequalities, including shorter life expectancy, higher morbidity, violence, and greater usage of acute hospital services such

as ED visits. When looking at it through the lens of social determinants, homelessness is a key factor for poor health; however, homelessness itself results from accumulated adverse social and economic conditions (Stafford & Wood, 2017). Community factors such as instability and overcrowding at home, concentration of alcohol-related businesses, poor economic growth or stability, increase poverty, lack of positive community relationships, and a community that views the use of violence as acceptable behaviors can all be associated with an increased risk for youth violence (David-Ferdon & Simon, 2014). Communities that have a high level of crime, gang presence, increased rates of unemployment, and drug use or distribution are additional risk factors for a young person to engage in violent behaviors (David-Ferdon & Simon, 2014). However, the presence of a stable home that is regularly maintained, cleaned and repaired, and a community that is safe and promotes positive interactions are examples of community-level factors that can provide buffers to violence (David-Ferdon & Simon, 2014).

Henry, Watt, Rosenthal, and Shivji (2017) authored the 2017 Annual Homeless Assessment Report (AHAR) for Congress. These authors found that on any given night in 2017, 553,742 people were homeless in the United States. Approximately 65% were staying in homeless shelters or transitional housing programs, while 35% in unsheltered locations. Their findings further found that 184,661 were homeless families with children (33%), and 40,799 were unaccompanied youth under the age of 25. Most of the unaccompanied youth (88%) were between the ages of 18 and 24, and the remaining 12 percent (4,789) were under the age of 18. Unaccompanied youth are more likely to be unsheltered (55%) compared to all people and families experiencing homelessness. The

findings further showed that the unaccompanied youth under 18 are more likely to be unsheltered (56%) compared to the unaccompanied homeless youth 18 to 24 (54%) (Henry et al., 2017). There are numerous negative outcomes associated with young people being homeless such as: increased risk for engagement in violent and delinquent behaviors, substance use, and criminal behaviors. In fact, runaways are close to three times more likely to be arrested and involved in violent behaviors during adolescents compared to non-runaways (Yoder et al., 2014). Given that homeless young people are more at risk for violence and criminal activity compared to their housed counterparts, it is important to understand factors that may contribute to their behaviors. Yoder et al. (2014) conducted a study from 2010 to 2011 that looked at young people between the ages of 18 to 24 who spent at least two weeks homeless. The results of their study found that exposure to childhood physical abuse was a significant risk factor for the young person being homeless and engaging in violent and delinquent behaviors. Young people tend to leave their home of origin in an effort to escape being abused, and the abuse during early childhood can leave lasting scars on their self-esteem and functioning later in life (Yoder et al., 2014). Homeless young people tend to gravitate towards other delinquent peers and peer pressure can encourage violent behaviors especially among those young people with low self-esteem. Delinquent peers can also foster the development of a distorted perception regarding right from wrong, harmful behaviors, and pro-social coping skills, resulting in the seeing violence as a normal response to survive (Yoder et al., 2014). Furthermore, just by leaving the traumatic event and not dealing with their emotions, the young person often times becomes overcome with

residual emotions, feelings, or reactions to the trauma. These unresolved feelings from early trauma can lead to poor self-regulation and coping skills, which places the young person at greater risk for current and future use of violent and delinquent behaviors (Yoder et al., 2014).

Although homeless is a significant risk factor for youth violence, youth who live in economically disadvantaged communities are also at risk for engaging in violent and delinquent behaviors. According to Finigan-Carr et al. (2016) the street milieu can increase the young person's chances of becoming involved with deviant peers, having personal experiences with violent victimization, easy access to firearms and drugs, and being witness to community violence. In disadvantaged communities violence tends to be seen as a norm or learned copy skill to solve a conflict. In addition, the social supports necessary for positive parenting behaviors may be diminished which impedes the ability of family members to effectively manage youth aggressive behaviors (Finigan-Carr et al., 2016).

Homeless or precariously housed young people have been found to be among the highest users of ED services for assault-related injuries including repeat ED visits for the same injury (Mackelprang, Qiu, & Rivara, 2015). According to Mackelprang et al. (2015), homeless young people tend to be at greater risk for intentional or traumatic injuries from assault and have overall poor health status, lack health insurance, do not have access to transportation or a telephone, have poor or no access to primary care services, live in a inner-city areas, struggle with chronic alcohol or drug use, and/or have

a mental illness. These factors can be linked to the high rates of ED use and repeat visits for assault-related injuries among homeless young people (Mackelprang et al., 2015). Determining the reasons for why homeless or precariously housed young people seek services through the ED is critical for understanding their needs and how to best provide this population with services.

Race and Ethnicity

Youth violence is a complex and widespread health issue that can impact all racial and ethnic groups; however, according to Cooley-Strickland et al. (2009) ethnic minority especially African American children are at greater risk for youth violence. This increase in exposure and engagement in youth violence can be contributed to socio-economic status and community variation given that ethnic minorities tend to be over represented in urban areas (Cooley-Strickland et al., 2009). For example, on a national basis African Americans tend to reside in inner-cities and experience a higher rate of violent crimes compared to urban Caucasians. According to Cooley-Strickland et al. (2009) based on a nationally representative sample of young people from 2009, 57 percent of African American children had been a witness to violent acts compared to 50 percent of Latinos and 34 percent of Caucasians. Haggerty et al. (2014) suggest that Black juveniles are five times more likely to be arrested for violent crimes compared to White juveniles, and these authors surmise that this difference is potentially influenced by factors such as income, neighborhood cohesion, and the environment. For example, populations with higher income have been associated with fewer violent behaviors among both Black and White young people. However, Black young people are more likely to come from

families with fewer economic resources and live in communities that are more disadvantaged, have fewer resources, and increased crime rates compared to White young people. These disadvantages at the community and family levels can provide an explanation of the variation in racial disparity in youth violence (Haggerty et al., 2014). Understanding the mechanisms behind the differences in violent behaviors between racial groups can allow practitioners to create specific prevention initiatives that are racial and ethnic focused (Haggerty et al., 2014; Stoddard et al., 2014). In a study completed by Haggerty et al. (2014) in 2012, they found that Black young people tend to be exposed to higher levels of risk factors that place them at greater risk of violent behaviors compared to White young people. For example, their study found that Black young people tend to experience more poverty, their parents tend to have a lower educational level, and they were more likely to associate with peers who were involved in alcohol and marijuana use and anti-social behaviors. Lastly, there tend to be cultural and structural difference in neighborhoods that place Black young people at greater risk for violence compared to White young people. Haggerty et al. (2014) found in their study that culturally the places that Black young people live are characterized by street code which emerges when residence experience prolonged profound disadvantages. Haggerty et al. (2014) suggests that this may explain the higher exposure to friends who get in serious trouble at school, and behavioral patterns learned from family members.

Carter et al. (2017) conducted a study to assess the influences of individual and neighborhood factors on young people ages 10 to 24 that were seen in the ED due to assault-related injuries that were inflicted by a firearm. The findings from their study

found that minority young people were at the highest risk for being seen in the ED for injuries from interpersonal violence with a weapon (Carter et al., 2017). This finding is consistent with findings from a study completed by Masho et al. (2016) that firearm homicides are the leading cause of mortality among African-American young people, and African-American young people are seen in the ED for assault-related injuries due to firearms eight times greater than Caucasian young people. According to Carter et al. (2017) this violence disparity can be contributed to neighborhood level factors such as, poverty, neighborhood disorganization, family challenges, low economic opportunities, and a high concentration of firearms including access to illegal firearms. Given the racial disparities among young people who are seen in the ED for assault-related injuries, prevention efforts need to be culturally diverse and address the intentional violent injury risks that exist for minority young people in low-resource neighborhoods with high level of community violence (Carter et al., 2017).

Age

David-Ferdon et al. (2018) looked at data collected from the National Electronic Injury Surveillance System - All Injury Program (NEISS-AIP) to examine 2001 to 2015 trends in non-fatal assault injuries among young people between the ages of 10 and 24 who were treated in the ED by age and sex groups. During this time period around 9.6 million young people ages 10 to 24 were treated in EDs for non-fatal assault-related injuries. The following table depicts further findings that demonstrate the high rates of ED visits among young people between the ages of 10 to 24 seen in the ED for assault-related injury:

Table 3

Results by age group and sex per 100,000

Age group	Sex	Seen in the ED for assault-related injures per 100,000
20 - 24 years	Male and female	1,376.5
10 - 14 years	Male and female	729.0
15 - 19 years	Male and female	1,159.7

Adapted from“, Nonfatal Assaults Among Persons Aged 10–24 Years — United States, 2001–2015” by David-Ferdon et al., 2018, *MMWR Morbitity and Mortality Weekly Report,* 67(5);141–145

In addition, 81.2 percent of young people between 10 to 24 were treated for injuries related to being intentionally struck or hit, while 8.1 percent of the injuries included cuts, stabbings or piercings and 5.7 percent were from firearm related injuries (David-Ferdon et al., 2018).

When exploring individual risk factors for youth violence, Sitnick et al. (2017) suggests an association between trajectories of aggressive and oppositional behaviors and poor emotional regulation between the ages of six through 15, and increase risk of chronic high behavioral problems and engagement in violence at age 17. Bushman et al. (2018) further suggest that early aggressive behaviors in a young person's life tends to be a predictor of later aggressive, antisocial, and violent behaviors as the young person enters into their teen and adult years (15 to 24). Furthermore, when a young person

starting as early as 12-months through six years old who are unable to regulate their emotions they tend to be more prone to be less compliant, more oppositional and aggressive in their interactions with their parents, other adult figures, siblings, and peers. These behaviors lead to increased peer rejection, affiliation with other deviant peers, increased aggressive and anti-social behaviors between ages 15 and 24. Violence involvement during adolescence is a potential risk factor for continued violent behaviors as the young person enters adulthood. For some young people, violent behaviors progress from physical fighting during early adolescence to more lethal forms during later adolescence (Stoddard et al., 2014). Although some young people are more prone to aggressive and violent behaviors compared to others, those young people between the ages of six and 15 who are characteristically angry and poorly regulate their anger such as: become angry quickly, their anger tends to be too intense, and their anger lasts for an extended period of time, are at a higher risk of engaging in violent behaviors as they reach the age of 17 through 24 years old (Bushman et al., 2018). Therefore, understanding and identifying the point in the young person's developmental pathway when aggressive behaviors and the inability to regulate emotions started, age specific interventions can be implemented to prevent the progression of violent behaviors as the young person ages (Sitnick et al., 2018).

Insurance or Payer Source

Insurance or payer source is considered a proxy for the young person's social economic status which can either be a risk or protective factor for youth violence and aggressive behaviors (Carter et al., 2017). Benedict et al. (2017) conducted a study in

2011 where they examined the prior ED utilization patterns of young people (13 to 24) for assault-related injuries, and used insurance and payer source as variables as a proxy for socioeconomic status. One unique characteristic that stood out in the authors results was that 33% of young people in their study had no health insurance, making access to a primary care physician (PCP) and violence prevention programs difficult and unlikely for these high-risk young people (Benedict et al., 2017). Given the lack of or limited health care coverage, young people tend to use the ED as their primary source of medical care for assault-related injured; therefore, if a history of youth violence behaviors are not identified during an ED visit, it may not be identified at all (Benedict et al., 2017). Cunningham et al. (2014) conducted a cross-sectional screening data from an ongoing longitudinal study examining violent experiences among urban youth who are treated in the ED for assault-related injury. These authors specifically examined young people between the ages of 14 and 24 who were seen in the ED for assault-related injury and compared them to a group of young people in the same age group seeking care for non-assault related treatment (Cunningham et al., 2014). One of the demographic characteristics these authors explored was the association between payer source specifically public assistance and assault-related injury ED visits. Their findings suggested that either parent or self receipt of public assistance was a statistically significant predictor for current and future assault-related injury ED visits (Cunningham et al., 2014). These authors associated this finding to the strong role of neighborhood and family characteristics in determining young people's conflict resolution and coping skills, and lack of community resources. As previously mentioned Carter et al. (2017),

conducted a study to assess the influences of individual and neighborhood factors on young people ages 10 to 24 that were seen in the ED due to assault-related injuries that were inflicted by a firearm. These authors used lack of health insurance as a proxy for socioeconomic status in their study, which further supports the value of using this variable as a proxy for socioeconomic status in this current study to examine the characteristics of young people between the ages of 10 and 24 who seek medical care for assault-related injuires through the ED. One finding from Carter et al. (2017) study highlighted that young people from communities with high levels of socioeconomic disadvantages or those receiving State Medicaid benefits or lacking health insurance were at the highest risk for seeking health care in the ED for assault-related injuries from firearms. Again, this can be associated to community and family level factors such as; poverty, lack of community resources, high rates of crime and violence, family challenges, and family views on using violence as a method to solve conflict (Carter et al., 2017).

Summary and Transition

Youth violence is not the result of just one factor and varies by age, sex, race and ethnicity, housing status, and payer source; therefore, there is not just one way to prevent it from occurring (David-Ferdon & Simon, 2014; Dicker 2016). The growing body of youth violence literature indicates that youth violence is influenced by the interplay of factors at the individual, relationship, community and societal level, and protective factors that affect young people over the course of their development from early childhood through young adulthood (David-Ferdon & Simon, 2014). All these factors

can interact to either increase or decrease the likelihood that the young person will engage in violent or aggressive behaviors. As noted in previous sub-sections, some communities and subgroups of young people are placed at greater risk and have fewer protective influences which tend to contribute to the disparity among youth violence (David-Ferdon & Simon, 2014). EDs provide an opportunity to access transitionally hard to reach young people including those who are uninsured or underinsured, are not connected to a primary care physician, are homeless, and those who are not attending school on a regular basis (Carter et al., 2016). If EDs are going to develop effective youth violence prevention initiatives, it is critical that there is a better understanding of the personal characteristics of young people who present to the ED for assault-related injuries and what modifiable characteristics distinguish them from their peers (Cunningham & Knox, 2014). By identifying perpetrators and victims of youth violence in the ED and referring them to community resources, health care providers may be able to prevent future violent acts toward others (Houry et al., 2009). In the following section I will discuss my research design, data collection and methodology that will be used to answer my research questions and hypotheses.

Section 2: Research Design and Data Collection

The purpose of this quantitative study was to examine the characteristics of young people between the ages of 10 and 24 who seek medical care for assault-related injuires through the ED. I made efforts to analyze the relationship between age, sex, race and ethnicity, insurance or payer source, and housing status and the likelihood of ED visits among this targeted population. Since my particular interest was to determine whether or not a certain age group has a higher frequency of being seen in the ED for assault-related injuries, I used age as an independent variable to answer the research questions. This section describes the design, methodology, data source, operationalizstion of variables, threats to validity, ethical considerations, and the data management processes I used for this reserach study.

Research Design and Rationale

I used a cross-sectional design for this research study. In a cross-sectional study, the researcher measures the outcomes and exposures among the study participants at the same time. Unlike in case control studies where participants are selected based on the outcome status or cohort studies where participants are selected based on exposure status, participants in a cross-sectional study are selected based on the inclusion and exclusion criteria that are set for the study (Setia, 2016). According to Setia (2016), the value of using a cross-sectional design in a quantitative study is that is can be conducted faster and less expensively, which can make the most of available resources and expedite the analysis of secondary date. This type of design provides valuable information about the

prevalence of outcomes and exposures, and the data obtained from a cross-sectional study can be useful for public health planning, monitoring, and evolutions (Setia, 2016).

For this study I used secondary data provided by the NHAMCS database. Cheng and Phillips (2014) defined secondary data analysis as the use of existing data to find answers to a question that is different from that in the original work. Secondary data has the potential to provide the researcher with important new research questions or provide a more nuanced assessment of results from an original study, and is an option that can be used when there is limited time and resources (Cheng & Phillips, 2014). Lastly, Cheng and Phillips (2014) suggested that another valuable benefit of using secondary data is that they eliminate the ethical issues that are associated with primary data collection and ensure the confidentiality of those who participate in the survey. NHAMCS, which I used in this study, is considered an important and commonly used database for observational studies that examine U.S. health care delivery and ED services. The large sample size and nationwide sampling techniques of NHAMCS tend to increase the researchers ability to identify important relationships that may have gone undetected within a single hospital or health care system (McNaughton, Self, & Pines, 2013). NHAMCS is designed to collect data on the utilization and provision of ambulatory care services in hospital emergency and outpatient departments. The NHAMCS dataset is a large, robust, and comprehensive secondary dataset that has been utilized in hundreds of research studies, and the results from these studies have been considered accurate and useful (McNaughton et al., 2013). The use of NHAMCS provides all the benefits as

explained above while also providing me with the necessary variables needed to answer my studies research questions.

Methodology

The following sections include information regarding the methodology that I used to complete this study. Also included is a description of the analysis plan, data management practices, targeted population, sampling techniques, instrumental and operationalization cconstructs, threats to validity, and ethical procedures.

Target Population

For this study, the target population included all males and females between the ages of 10 and 24 who were seen in one of the 267 participating nationwide EDs for medical care due to assault-related injuires. I selected this age group to coincide with the CDCs definition of youth violence.

Sampling Techniques

For this study, I used the CDC's 2015 NHAMCS, which is a publicly available data set accessible on the CDC web site. The 2015 NHAMCS is the nation's leading secondary dataset where findings are based on the most current nationally representative data on hospital ED visits in the United States. A total of 457 hospitals were selected to participate in the 2015 NHAMCS, 377 were in scope and had an eligible ED, and 267 EDs participated and responded nationwide. The NHAMCS survey sample did not include data gathered from federal, military, and Veterans Administration hospitals (CDC, 2018a). I used variables including age, sex, race, housing status, insurance or payer source, visit related to injury/poisoning/adverse effect, and patient reason for visit

to describe the frequency and patterns of violent injuries to determine how many injured young people between the ages of 10 and 24 are discharged directly from the emergency department, and identify associating characteristics of this target group who use the ED for medical care due to assault-related injuries. There is a total of 21,061 subjects, a total of 1031 variables, and a total of zero (0) missing values in any of the variables in this data set. NHAMCs data was collected in real time by local hospital staff or by a United States Census Bureau field representative and data was taken electronically using a computerized instrument from patient records provided by the participating EDs. I extracted data from the NHAMCS dataset related to the variables identified in this study and import the information into IBM SPSS for analyses of the study research questions.

In the following tables, Table 4 outlines the independent, dependent, and control variables that I used to answer the eight research questions in this study, and in Table 5 the unique entries of each variable is described:

Table 4

Study variables: independent, dependent, and control by research question

Research questions	Independent variable	Dependent variable	Control variable
Question #1 & #5	Age	INJPOISAD	Sex
Question #2 & #6	Race and ethnicity	INJPOISAD	Sex
Question #3 & #7	Residence	INJPOISAD	Sex
Question #4 & #8	PAYTYPER	INJPOISAD	Sex

Injury/trauma will be assessed by using variable 51(INJPOISAD) from the NHAMCS dataset. Variable 51 asks: Is visit related to an injury/trauma, overdose/poisoning or adverse effect of medical/surgical treatment? Recoded #1. The categories for this variable is broken down to: Yes - Injury/trauma; Yes - overdose/poisoning; Yes, adverse effect of medical/surgical treatment; and No, visit is not related to any of those categories. According to the code book, if a Yes - injury/trauma was selected it only includes those patients who were seen for Violence NOS: abuse, beat up, in a fight, or stabbing.

Payer source will be assessed by variable 27 (PAYTYPER) from the NHAMCS dataset. Variable 27 asks: Expected source of payment at emergency department visit.

Table 5

Unique entries of each variable used in this study

Variable	Unique Entry	Unique Entry		
Age	Under 15 years	15 to 24 years		
	3927	3173		
Residence	UNK	Private Residence	Homeless	Other
	311	19,789	201	267
Sex	Female	Male		
	11,610	9451		
Race and Ethnicity	Non-Hispanic White	Non-Hispanic Black	Hispanic	Non-Hispanic Other
	12,530	4593	3344	594
INJPOISAD	Yes, Injury/Trauma	No, Visit not related to injury	Questionable injury status	
	6271	13,153	53	
PAYTYPER	UNK	Private Insurance	No Charge - Charity	
	1438	6039	119	
	Self-Pay	Medicaid/CHIP	Other	
	1890	6781	429	

Injury/trauma will be assessed by using variable 51(INJPOISAD) from the NHAMCS dataset. Variable 51 asks: Is visit related to an injury/trauma, overdose/poisoning or adverse effect of medical/surgical treatment? Recoded #1. The categories for this variable is broken down to: Yes - Injury/trauma; Yes - overdose/poisoning; Yes, adverse effect of medical/surgical treatment; and No, visit is not related to any of those categories. According to the code book, if a Yes - injury/trauma was selected it only includes those patients who were seen for Violence NOS: abuse, beat up, in a fight, or stabbing.

Payer source will be assessed by variable 27 (PAYTYPER) from the NHAMCS dataset. Variable 27 asks: Expected source of payment at emergency department visit.

Data Management

NHAMCS is a publicly available micro data file that is accessible on the CDC website that I downloaded using SPSS software. The Public Health Service Act (Section 308 (d)) outlines that the data collected by the National Center for Health Statistics (NCHS), CDC, may be used only for the purpose of health statistical reporting and analysis, and any efforts to determine the identity of any reported case is prohibited by law (CDC, 2015). According to the CDC (2105), NCHS does all that it can to ensure the identity of data subjects cannot be disclosed by omitting any direct identifiers or characteristics that might lead to identification of a patient. CDC (2015) outlined three data management requirements: (a) use the data in this dataset for statistical reporting and analysis only, (b) make no use of the identity of any person or establishment discovered inadvertently and advice NCHS director or any discovery, and (c) do not link this dataset with individually identifiable data from other NCHS or non-NCHS datasets. During the data analysis there was no inadvertent discovery of patient or establishment identity. My use and management of the data obtained from the NHAMCS public dataset was consistent with the above outlined statutorily based requirement to ensure the data remained authentic, uncompromised, and did not compromise person or establishment identity. Additionally, regular backup of data files were completed to ensure safe keeping of this research.

Justification for the Sample Size, Effect Size, Alpha Level, and Power Level

I conducted a power analysis using G*Power 3.1 to determine the sample size and the power level for the statistical analysis piece of this research study. For the sample

size and power analyses, the effect size of an odds ratio was set at 1.30 and the alpha level was set at 0.05 in order to minimize type I error and improve external validity by increasing the chances of correctly rejecting the null hypothesis (Frankfort-Nachmias & Leon-Guerrero, 2015). As Frankfort-Nachmias and Leon-Guerrero (2015) suggested, a power level of 0.95 was selected to minimize type II error and gain 95% chance of detecting an effect. The results from the power analysis indicated a minimum sample size of 1188 for this research study.

Instrumental and Operationalization of Constructs

NHAMCS is the nations' leading study on ambulatory medical care in hospital ED's and outpatient departments in the United States. This survey has been conducted annually since 1992 and provides a yearly national description of hospital-based ambulatory medical care services in the United States (CDC, 2018a). The 2015 NHAMCS survey is the most current dataset available, and the data for this survey was collected between December 29, 2014 through December 27, 2015. The survey provided reliable statistics that will enable researchers to better measure the utilization and provision of ambulatory health services including ED visits (CDC, 2018a). The CDC (2018a) suggests that the need for this national data has been accentuated by recent efforts toward health care reform, the growth in the ageing population, the increased amount of people without health insurance, ED over-crowding, the introduction of new medical technology, and the shift from hospital inpatient to outpatient services. The 2015 NHAMCS survey contained 13 sections. These sections included patient demographic information, mode of transportation to the hospital, payer source, vital signs, reason for

hospital visit, injury type, whether the injury was due to an assault or accidental, diagnosis, what diagnostic testing was completed, medication and immunization, what procedures were completed, vitals at discharge, what providers saw the patient during the visit, if patient was placed in observation status or admitted to the hospital, and discharge disposition, plan and diagnosis (CDC, 2018a). There are six different variables used for this study: (1) age, (2) race and ethnicity, (3) residence, (4) payer source, (5) sex, and (6) whether the injury was related to an injury/trauma. Information gathered from this survey was taken directly out of the patient medical records that had been provided by the participating ED's (CDC, 2018a).

Variables regarding age, race and ethnicity, residence, and payer source were identified as the independent variables for this research study. Continuous scales of measurement was used to categorize the age variable and measured in years by age groups, and the only age groups considered for this study was 10 to 14, 15 to 19, and 20 to 24. Nominal scales of measurement were used to categorize the race and ethnicity, residence, and payer source. Options for race and ethnicity were White, Black or African American, Asian, Native Hispanic or other Pacific Islander, and American Indian or Alaska Native, and all options for this variable were considered. Options for residence were private residence, nursing home, homeless, other, and unknown, and the options considered for this variable were private residence, homeless, and unknown. Options for payer source were private insurance, Medicare, Medicaid or CHIP, workers compensation, self-pay, no charge/charity, other, unknown, and the options considered for this variable were private insurance, Medicaid or CHIP, self-pay, and no

charge/charity. For the purpose of comparison between males and females, the variable sex was identified and a dichotomous format (male or female) based on self-report was used to categorize this variable. Nominal scale of measurement was also used for the dependent variable of whether the injury was related to an injury/trauma. Options for this variable were assault injury/trauma, overdose/poisoning adverse effect of medical/surgical treatment. The only option used for this research study was assault injury/trauma. Other variables related to mode of transportation to the hospital, vital signs, what diagnostic testing was completed, medication and immunization, what procedures were completed, vitals at discharge, if patient was placed in observation status or admitted to the hospital, and discharge disposition, plan and diagnosis provided by the NAHMCS survey were not considered for this research study.

Data Analysis Plan

The National Health Care Survey (NHCS) made several enhancements to the 2015 NHAMCS public use data file (CDC, 2018a). For this study SPSS version 23 was utilized to perform the analytical strategies, and one of the enhancements was the creation of premade SPSS datasets for reading and formatting the data which allowed the 2015 NHAMCS to be easily opened using SPSS software (CDC, 2018a). The 2015 NHAMCS public dataset provided the needed independent and dependent variables for this research study. Chi-square and the independent t-test were used to describe the sample for this study. The chi-square provides the ability to test for significant relationships between two nominal or ordinal variables, while the independent t-test provides the ability to test

whether or not there is a significant difference between the means of two groups which may be related in certain features (Frankfort-Nachmias & Leon-Guerrero, 2015). Logistic regression with clustered robust standard errors was used to answer research questions five through eight to examine the relationship between whether the injury was related to an injury/trauma (dependent) and age, race and ethnicity, residence, and payer source (independent variable) after adjusting for sex:

RQ5 ~ Logistic regression model with assault-related injury ED visit as the dependent variable and age groups (10-14; 15-19, 20-24) as the independent variable, after adjusting for sex.

RQ6 ~ Logistic regression model with assault-related injury ED visit as the dependent variable and racial and ethnic as the independent variable, after adjusting for sex.

RQ7 ~ Logistic regression model with assault-related injury ED visit as the dependent variable and housing status as the independent variable, after adjusting for sex.

RQ8 ~ Logistic regression model with assault-related injury ED visit as the dependent variable and insurance or payer source as the independent variable, after adjusting for sex.

Data Cleaning and Screening Procedures

According to Gliklich, Dreyer, and Leavy (2014) data cleaning refers to the correction or amelioration of data problems including missing values, incorrect or out of range values, responses that are logically inconsistent with other response in the dataset, and duplication of patient records. NHCS places high priority on protecting patient confidentiality and adherence to the requirements of HIPAA, that all information for the

NHAMCS dataset was collected in a manner that protected patient identity included information that could result in a physician or hospital being identified, and was approved by the National Center for Health Statistics Research Ethics Review Board (CDC, 2018a). Before the 2015 NHAMCS dataset was made public, the NHCS data management group made efforts to clean and screen the data for missing data, coding errors, irregularities and outliers. When data is noted to be missing, then the field representative must speak with their ED contact for an explanation and retrieve the missing information from the medical record and/or patient record form (CDC, 2018a). The efforts of NHCS to ensure the data was cleaned before making the dataset public was another benefit of using secondary data that is publically accessible as it helped to expedite the data analysis portion of this research study. Although the code book noted that there were no missing values in any of the variables in this data set it is still good practice to complete a spot check of the data set (Gliklich et al., 2014). A spot check of the 2015 NHMCS data set was completed to look for any values that were either extremely large or extremely small that could be considered out of the range of possibility or drag the mean or medium either up or down. The spot check also looked to ensure that there were no letters or words where numbers were supposed to be. The results of the analysis are found in chapter three.

Threats to Validity

The term validity in research refers to the extent in which the research measures what it intended to measure (Babbie, 2017). There are two forms of validity that need to be addressed in a quantitative research study, (1) internal validity, and (2) external

validity. Internal validity refers to the approximate truth about inferences regarding cause effect or causal relationship, in other words, it is the observed outcome attributed to the program or intervention and not to other alternative explanations (Babbie, 2017). The threat to internal validity is present whenever anything other than the experimental stimulus affects the dependent variable. Threats to internal validity in quantitative research compromises the confidence in stating that there is a relationship between the independent and dependent variables. There are several sources that can threaten the internal validity such as: history, maturation, testing, instrumentation, statistical regression, and selection of subjects, experimental mortality, evaluation anxiety, or selection maturation interaction (Babbie, 2017). External validity refers to the approximate truth of the conclusions that involve generalizations, in other words, it is the degree to which the conclusion of the study would be the same for anyone regardless of place and time. Sources that threaten external validity in quantitative research can include, reactive or interaction effect of testing, interaction effects of selection biases and the experimental variable, reactive effects of experimental arrangements, or multiple treatment interference. Someone could argue that the results of the study are due to the type of people selected in the study, or the recommendation could only be effective because of the specific place or time the study was conducted (Babbie, 2017). When utilizing secondary data it is critical that researchers recognize unique issues pertinent to the data quality at the beginning so that the potential for introducing threats to reliability and validity can be addressed and the impact on the results can be considered (Boo & Froelicher, 2013).

Given the nature and collection of the 2015 NHAMCS dataset there are a few threats to internal validity that need to be considered. The first is those who were seen in the ED for assault-related injures may differ systematically in some way from those in the sample who were seen for some other medical reason. The second risk is there could have been misclassification of patients for example, the reason for the ED visit was recorded incorrectly or the individual was not truthful about the cause of their injury. There are also threats to external validity that need to be considered as well. The first is potential selection bias by hospital. Participation in the NHAMCS survey is voluntary and the hospitals that choose to participate could be systemically different in some way compared to hospitals that declined to participate. Therefore, the survey may not capture EDs with higher rates of assault-related injuries or they may not be a true representation socioeconomic factors. The second risk is selection bias by patient. There are most likely more people who have assault-related injuries who do not go the ED and there may be a difference between those who do seek out care in the ED. For example, the more sever the injury is the more likely a young person will seek medical care in the ED.

NHCS has taken measures to ensure that the data that is extracted from the patient files is completed accurately and minimize the risk of incomplete or inaccurate surveys. NHCS allows hospitals to use their own staff to extract the information needed to for NHAMCS datasets. However, the Census Bureau field representative goes out and trains the hospital staff on how to complete the patient record from and they are also provided with an instruction booklet that contains definitions of the data items. This ensures that

all hospitals who have been selected to participate in the NHAMCS that their staff are all extracting data the same way (CDC, 2018a).

NHCS has also made efforts to improve item non-response rates and to correct errors on the patient record forms. According to CDC (2018a), item non-response rates for the NHAMCS are generally low (5 percent or lower). The Census Bureau field representatives are trained to review the patient record forms completed by hospital staff for missing data and to obtain the data if possible. Unfortunately, NCHS has no control over items that are not documented during the clinical encounter such as cause of injury or demographic information. However, there were zero missing values noted for the 2015 NHAMCS dataset (CDC, 2018a).

Ethical Procedures

One of the numerous benefits that are provided when using secondary data in research is that most of the approvals and ethical considerations have been addressed and managed by the original research group (Cheng & Phillips, 2014). This assumption applied to the NHAMCS dataset used for this study. NHCS placed high priority on protecting patient confidentiality and adherence to the requirements of HIPAA. All information for the NHAMCS dataset was collected in a manner that protected patient identity included information that could result in a physician or hospital being identified, and was approved by the National Center for Health Statistics Research Ethics Review Board (CDC, 2018a). The public data files that are released for research purposes do not include any provider or patient identifying information (CDC, 2018a). Formal approval was received by the Walden University Institutional Review Board (IRB) approval

number 03-29-19-0644755 before proceeding to data retrieval, data analysis and interpretations.

Dataset Treatment Post-Analysis

Since the NHAMCS dataset used for this study is a public file provided by CDC there was no existing data agreement. Based on recommendations from Creswell (2014) that once data is analyzed the data and materials should be kept for a reasonable period of time such as five to ten years. Therefore, the data and materials used for this research study was stored in a password protected computer and deleted five years after the study was completed and final approval was received.

Summary and Transition

My study utilized a quantitative research design using the 2015 NHAMCS public use dataset which is the most current dataset available to examine the characteristics (including: age, sex, race and ethnicity, insurance or payer source, and housing status) of young people between the ages of 10 and 24 who seek medical care for assault-related injuires through the ED. The public use data was collected from December 29, 2014 through December 27, 2015 from 267 nationwide EDs in the United States (CDC, 2018a). The purpose of section two was to describe the research design and rationale, the methodology of the research, and potential threats to internal and external validity. The instrumentation and operationalization of the variables was described in order to provde an understanding of how the variables are measured and used in this study. Finally, information was provided regarding the target population, sampling techniques, data analysis plan, data management, and the ethical considerations for this study.

SPSS version 23 was utilized to perform the analytical strategies. NCHS made several enhancements to the 2015 NHAMCS data file, and one of the enhancements was the creation of premade SPSS datasets for reading and formatting. This enhancement made downloading the 2015 NHAMCS data file easily opened using SPSS software (CDC, 2018a). All considerations were made to address threats to internal and external validity and to follow proper ethical procedures throughout the study process. This ensured that the process of data collection and analysis delivered information that was reliable and did not violate any human or institution privacy (Creswell, 2014). In the section three I will build on the information provided in sections one and two by interpreting the study findings, discuss the study limitations, describe the implications for positive social change and how the information can benefit public health providers

Section 3: Presentation of the Results and Findings

Introduction

The purpose of this quantitative cross-sectional study was to analyze the relationship between age, sex, race and ethnicity, insurance or payer source and housing status and the likelihood of ED visits among young people between the ages of 10 and 24 for assault-related injuries. For this research, I utilized ED patient medical record data provided by the 2015 NHAMCS dataset for ambulatory medical care in hospital EDs in the United States. These data were collected December 29, 2014 through December 27, 2015 (CDC, 2018a). The 2015 NHAMCS survey is the most current dataset available from the CDC on ambulatory medical care. G*Power analysis confirmed the sample size of 1188 or larger was sufficient for this study, and the NCHS confirmed the sample was an accurate yearly national description of ED-based medical care services in the United States (CDC, 2018a). The 2015 NHAMCS dataset was cleaned, screened for missing data, coding errors, irregularities, and outliers by the NHCS data management group before the dataset was made accessible to the public, which expedited the data analysis process. NHCS ensured that all information for the NHAMCS dataset was collected in a manner that ensured all personal and sensitive information including information that could lead in a physician or hospital being identified was not collected or removed from the dataset prior to the dataset being made public (CDC, 2018a). A spot check of the 2015 NHAMCS data set was completed and no values were found to be either extremely large or extremely small and there were no letters or words where numbers were supposed to be. There were a total of 1031 variables listed in the 2015 NHAMCS

dataset, and I used the following six different variables for this study: age, race and ethnicity, residence, payer source, sex, and whether the injury was related to an injury/trauma (CDC, 2018a).

In this section, I present the results of the statistical analysis of the relationship and the differences between age, sex, race and ethnicity, insurance or payer source and housing status and the likelihood of ED visits among young people in this targeted age group. Section 3 concludes with a summary of the findings from the data analysis performed. Section 4 provides an interpretation of the results and the applicability and social change implications of the study.

Statistical Results

First, I generated a series of descriptive statistics that appropriately characterizes the sample, including a frequency table reporting sample size and percentages of responses for each variable included in this study. Chi-square was used for RQs 1 through 4 to examine if there were any significant trends with respect to age group, race and ethnicity, housing status, and insurance or payer source after adjusting for sex in the incidence of visits to the ED in the United States for assault-related injuries in 2015. I used logistic regression with clustered robust standard errors to answer RQs 5 through 8 to examine whether the injury was related to an injury/trauma (dependent) and age, race and ethnicity, residence, and payer source (independent variable) after adjusting for sex. I used the weights provided by the NHAMCS dataset, and age group 10 to 14, White, private residence, private insurance, and female were used as the reference category in the statistical analysis. Further, each analysis was conducted in accordance with the data

analysis plan described in Section 2. I used SPSS version 23 to perform the analyses for this study.

Descriptive Statistics

Table 6 outlines the baseline descriptive and demographic characteristics of the sample used for this study. As shown, 44% of young people seen in the ED for assault-related injuries fell between the ages of 20 and 24 years-old (1,814), while 34% were 15 to 19 years-old (1,359), and 22 percent were 10 to 14 years-old (911). When looking at race and ethnicity, 73% of the sample were White young people (2,344), 25% were Black or African American (804), 2% were Asian (47), and the remaining categories represented less than 3% of the entire sample group. With respect to housing status, the vast majority of young people resided in a private residence (3,932; 98%), with only .32% of the young people being homeless (13), and 1.5% having a housing status unknown (61). Lastly, 1,691 young people seen in the ED for assault-related injuries had Medicaid/CHIP (48%) as their payer source, with 1,395 having private insurance (40%), 415 being self-pay (12%), and 20 being no charge/charity (.57%).

Table 7 further breaks down the descriptive and demographic characteristic by the following age groups: 10 to 14, 15 to 19, and 20 to 24. When looking at race and ethnicity, 76% of young people between the ages of 10 and 14 were White (511), 20% were Black or African American (264), and 2% were Asian (15). Among 15 to 19 year olds, 73% were White (1,045), almost 25% were Black or African American (264), and 2% were Asian (15). Among 20 to 24 year olds, 70% were White (1,045), 28% were Black or African American (407), and almost 2% were Asian (15). In all age groupings,

the remaining categories with respect to race and ethnicity represented less than 3% of the entire sample group. With respect to housing status among each age grouping, 98% resided in private housing (10-14, 99%; 15-19, 98%; 20-24, 98%) while, .23% of 15 to 19 year olds were homeless (3), .56% of 20 to 24 year olds were homeless (10), and unknown was almost evenly split among each age grouping (10-14, .89%; 15-19, 2%; 20-24, 2%). Next, 472 young people between the ages of 10 and 14 seen in the ED for assault-related injuries 472 had Medicaid/CHIP (58%) as their payer source, with 304 having private insurance (37%), 37 being self-pay (5%), and 1 being no charge/charity (.12%). Among those between the ages of 15 and 19, 580 had Medicaid/CHIP (49%), 489 had private insurance (41%), 107 were self-pay (9%), and 5 were no charge/charity (.42%). Among those between the ages of 20 and 24, 639 had Medicaid/CHIP (42%), 602 had private insurance (39%), 271 were self-pay (18%), and 14 were no charge/charity (.92%). Lastly, with respect to sex, the majority of young people seen in the ED for assault-related injuries were females in the age groupings 15 to 19, and 20 to 24, with young people between the ages of 10 and14 being almost an evenly split based on sex (female, 49% and males, 51%).

Table 6

Baseline descriptive and demographic characteristics of the sample used for this study

		Frequency	Percent	Cumulative
Age	10-14	911	22.31	22.31
	15-19	1359	33.28	55.58
	20-24	1,14	44.42	100.00
Race/Ethnicity[1]				
	White	2344	72.52	72.52
	Black/AA	804	24.88	97.40
	Asian	47	1.45	98.86
Native Hawaiian/Pacific Islander		8	0.25	99.10
American Indian/Alaskan Native		29	0.90	100.00
Housing Status				
	Private Residence	3932	98.15	98.15
	Homeless	13	0.32	98.48
	Unknown	61	1.52	100.00
Payer Source				
	Private insurance	1395	39.62	39.62
	Medicaid/CHIP	1691	48.03	87.65
	Self-pay	415	11.79	99.43
	No-charge/charity	20	0.57	100.00

[1] AA stands for African American

Table 7

Baseline descriptive and demographic characteristics of the sample used for this study by the following age groups: 10 to 14, 15 to 19, and 20 to 24

	Ages 10-14 (n = 911) N (%)	Ages 15-19 (n = 1359) N (%)	Ages 20-24 (n = 1814) N (%)
Race/Ethnicity[1]			
White	511 (56%)	788 (58%)	1045 (58%)
Black/AA	133(15%)	264 (19%)	407 (22%)
Asian	12 (1%)	15 (1%)	20 (1%)
Native Hawaiian/Pacific Islander	4 (0.44%)	2 (0.15%)	2 (0.11%)
American Indian/Alaskan Native	10 (1%)	9 (0.66%)	10 (0.55%)
Housing Status			
Private Residence	891 (98%)	1303 (96%)	1738 (96%
Homeless	0	3 (0.22%)	10 (0.55%)
Unknown	8 (0.88%)	23 (2%)	30 (2%)
Payer Source			
Private insurance	304 (34%	489 (36%)	602 (33%)
Medicaid/CHIP	472 (52%)	580 (43%)	639 (35%)
Self-pay	37 (4%)	107 (8%)	271 (15%)
No-charge/charity	1 (0.11%)	5 (0.37%)	14 (0.77%)
Sex			
Male	466 (51%)	558 (41%)	697 (38%)
Female	445 (49%)	801 (59%)	1117 (62%)

[1]26%, 20%, and 18% "Blank" for age categories 10-14, 15-19, and 20-24 respectively
AA stands for African American

Statistical analysis can sometimes be intimidating, overwhelming, and difficult for people to quickly comprehend; therefore, the use of visual representation such as figures to present data can make it easier for readers to understand or follow (Frankfort-Nachmias & Leon-Guerrero, 2015). Figures 1 through 4 provide a visual representation to further outline the descriptive and demographic characteristics of the sample I used for this study. The figures are separated by age groups (10-14, 15-19, 20-24), race and ethnicity, residence, and payer source and compare the difference between those who were seen for assault-related injuries in the ED and those who were seen for other medical needs in each targeted age groups (10-14, 15-19, 20-24).

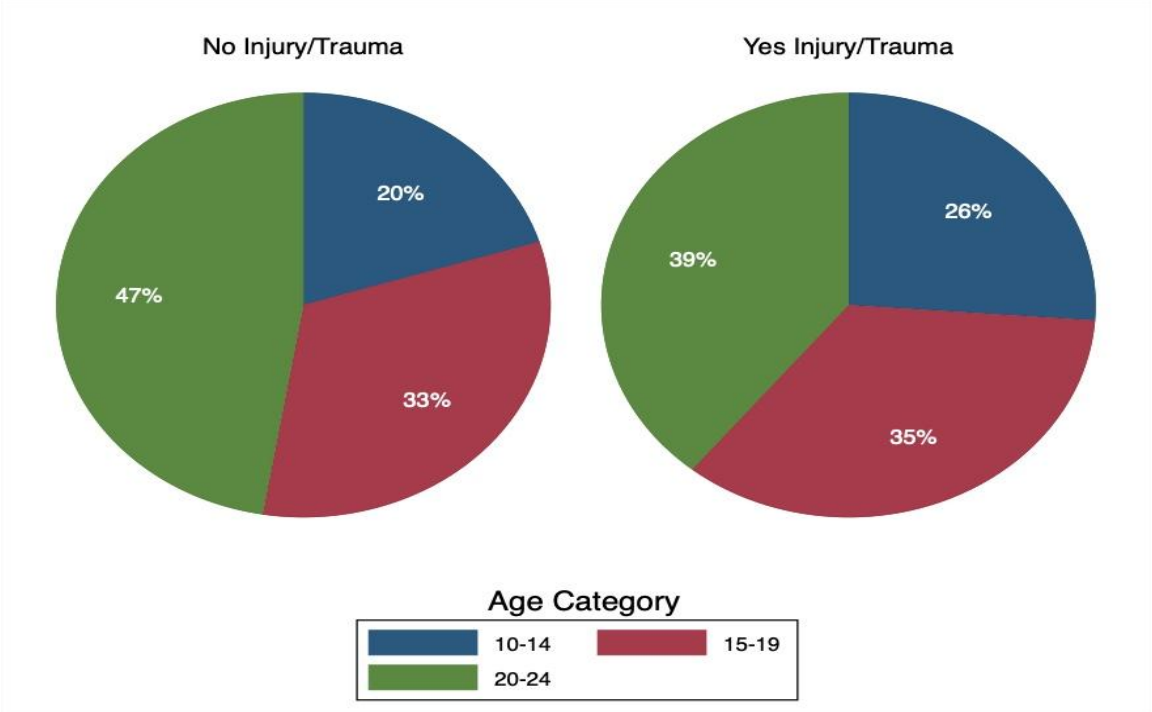

Figure 2.

Percentage of young people between the ages of 10 and 24 who sought medical care for assault-related injured through the ED by age group (10-14, 15-19, 20-24)

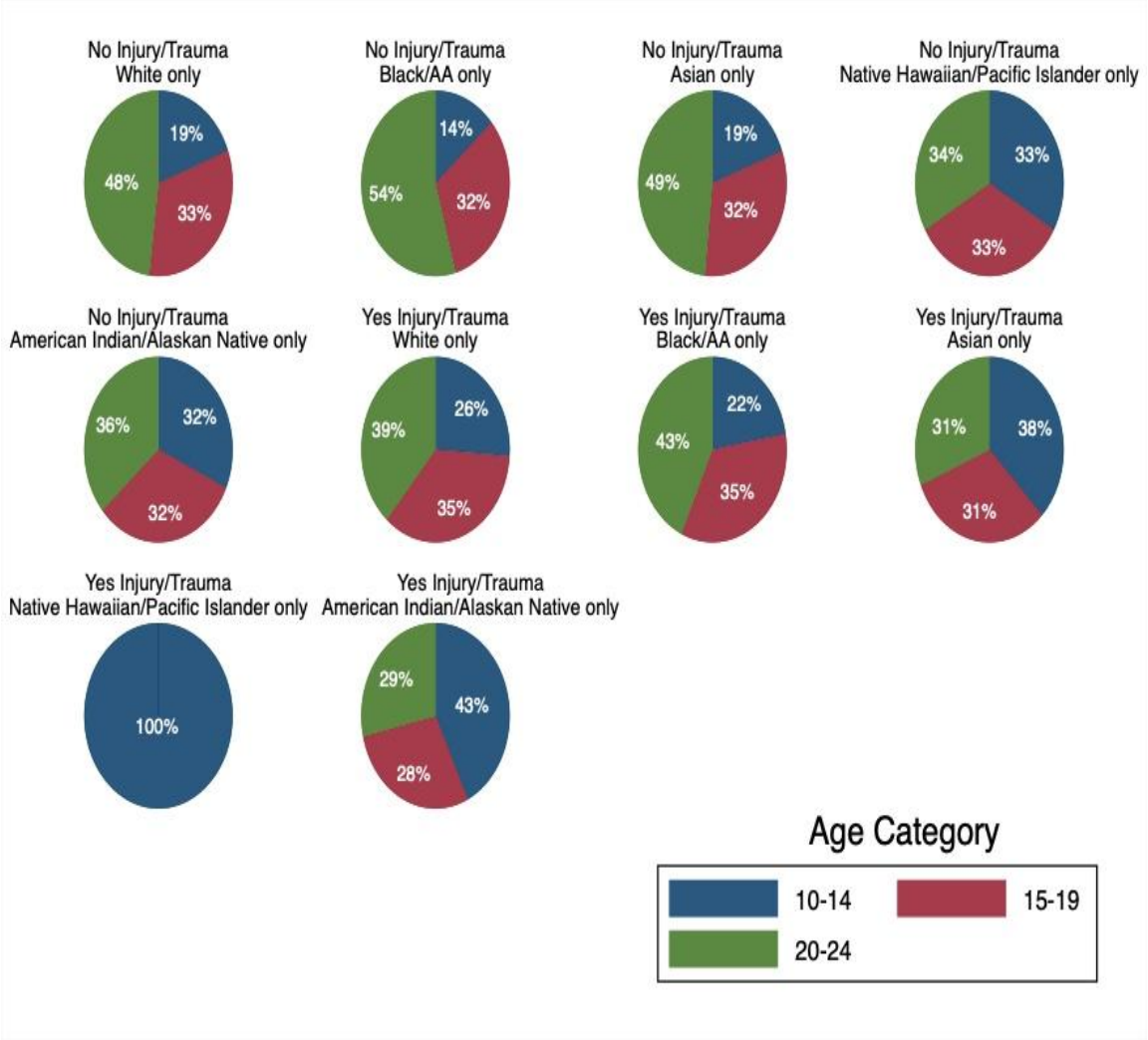

Figure 3.

Percentage of young people between the ages of 10-14, 15-19 and 20-24 who sought medical care for assault-related injured through the ED by race and ethnicity

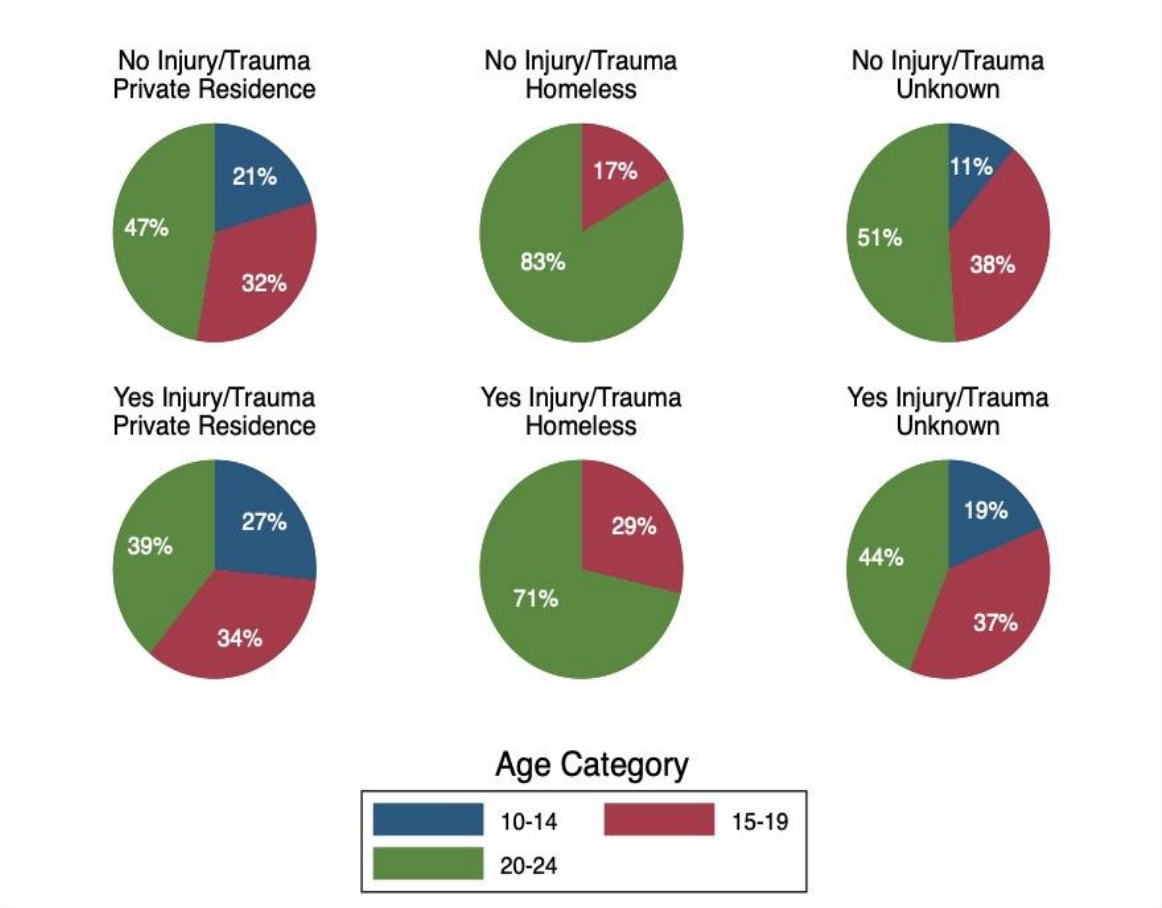

Figure 4.

Percentage of young people between the ages of 10-14, 15-19 and 20-24 who sought medical care for assault-related injured through the ED by housing status

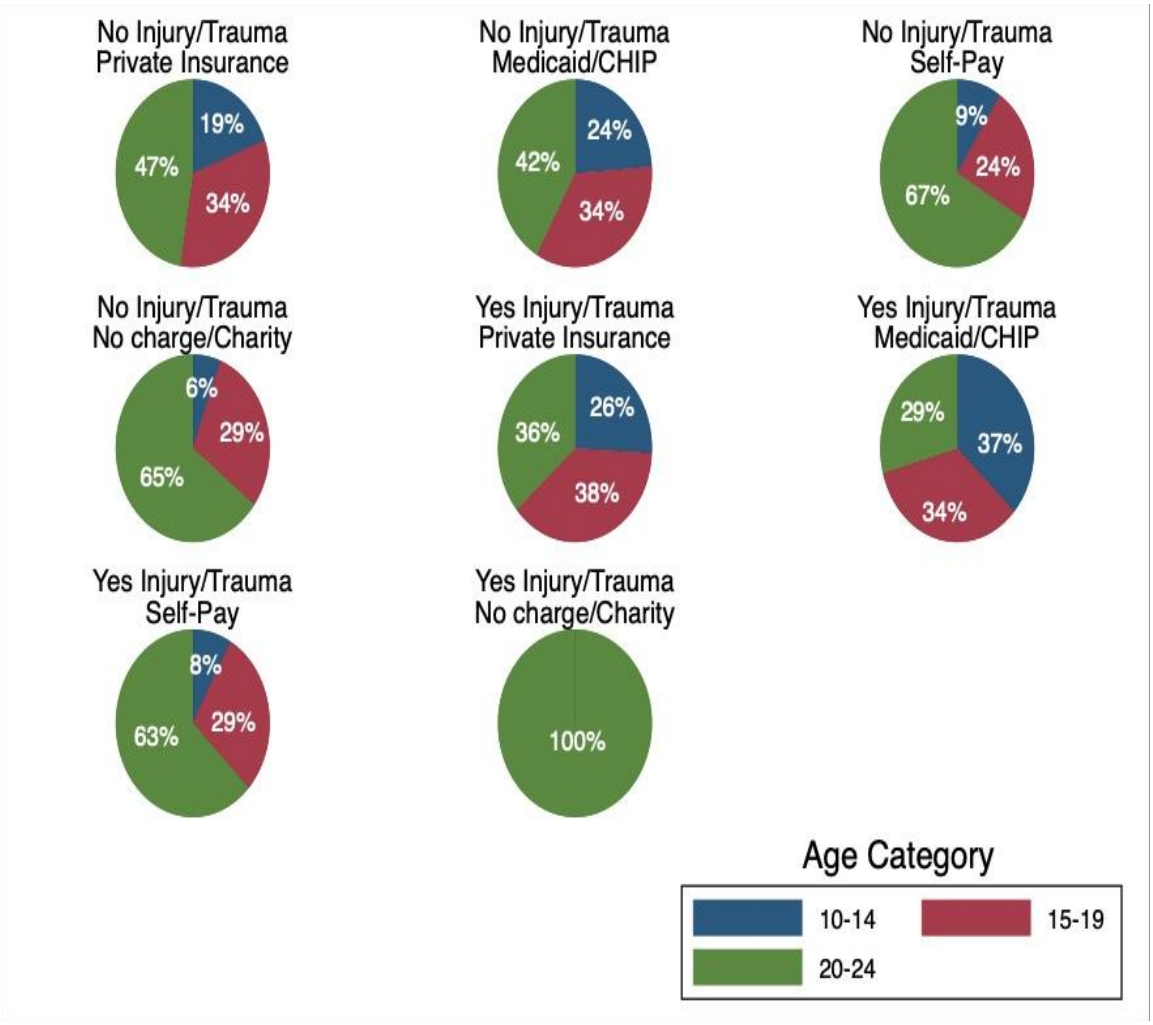

Figure 5.

Percentage of young people between the ages of 10-14, 15-19 and 20-24 who sought medical care for assault-related injured through the ED by payer source or insurance

Chi-Square

I used chi-square to evaluate RQs 1-4 to determine if there were significant trends between the frequency of young people between the ages of 10 and 24 who were seen in the ED in the United States for assault-related injuries in 2015 by age group (10-14, 15-19, 20-24), race and ethnicity, housing status, and insurance or payer source compared to those who were not seen for assault-related injuries using the same independent variables after adjusting for sex. According to Frankfort-Nachmias and Leon-Guerrero (2015), the chi-square is an effective tool to analyze group differences when the dependent variable is measured at a nominal level, making it an appropriate statistical test to help answer RQs 1 through 4.

RQ1: Are there age differences among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_0$1: There are no age differences among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$1: There are age differences among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

With the sample size of 4,084, the analysis showed a significant difference for being seen in the ED for assault-related injury between young people aged 10 to 14 (380) and young people between the ages of 20 and 24 (568). The chi-square analysis showed

that the observed and expected counts of those seen for injury/trauma within each age group were significantly different among those not seen for injury/trauma (observed less than expected) and overrepresented among those seen for injury/trauma (observed greater than expected). Those who were 20 to 24 years old were overrepresented among those who were not seen for injury/trauma and underrepresented among those who seen for injury/trauma. Therefore, the null hypothesis for RQ1 that there are no differences among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the ED in the United States for assault-related injuries in 2015, after adjusting for sex can be rejected. Table 8 provides the chi-square outputs for the NHAMCS dataset results that were used to help answer RQ1.

Table 8

Chi-square output: ED visits for injury/trauma compared to ED visit for other medical reasons by age group

			10-14	15-19	20-24
Injury/Trauma	No	Count	531	854	1246
		Expected Count	586.9	875.5	1168.6
		% of Total	13.0%	20.9%	30.5%
		Adjusted Residual	-4.4	-1.5	5.1
	Yes	Count	380	505	568
		Expected Count	324.1	483.5	645.4
		% of Total	9.3%	12.4%	13.9%
		Adjusted Residual	4.4	1.5	-5.1
Total		Count	911	1359	1814
		Expected Count	911.0	1359	1814.0
		% of Total	22.3%	33.3%	44.4%

RQ2: Are there racial and ethnic differences among young people aged 10 to14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015 after adjusting for sex?

$H_0$2: There are no racial and ethnic differences among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$2: There are statistically significant racial and ethnic differences among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

Using the sample size of 3,232, the analysis showed no significant difference for being seen in the ED for assault-related injuries by race and ethnicity. This interpretation is supported by there being no significant difference in the number expected to be seen for injury/trauma by race or ethnic groups and the number observed to be seen for injury/trauma by race and ethnic groups. Therefore, the null hypotheses for RQ2 that there are no racial and ethnic differences among young people aged 10 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex cannot be rejected. Table 9 provides the chi-square outputs for the NHAMCS dataset results that were used to help answer RQ2.

Table 9

Chi-square output: ED visits for injury/trauma compared to ED visit for other medical reasons by race

			White	Black/AA	Asian
Injury/Trauma	No	Count	1484	535	31
		Expected Count	1507.1	516.9	30.2
		% of Total	45.9%	16.6%	1.0%
		Adjusted Residual	-1.9	1.5	.2
	Yes	Count	860	269	16
		Expected Count	836.9	287.1	2.9
		% of Total	26.6%	8.3%	0.5%
		Adjusted Residual	1.9	-1.5	.2
Total		Count	2344	804	47
		Expected Count	2344.0	804.0	47.0
		% of Total	72.5%	24.9%	1.5%

RQ3: Are there differences by housing status among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex?

$H_0$3: There are no differences by housing status among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$3: There are statistically significant differences by housing status among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

Using the sample size of 4,006 the analysis further showed no significant difference for being seen in the ED for assault-related injuries by housing status. This interpretation is supported by there being no significant difference in the number expected to be seen for injury/trauma by housing status and the number observed to be seen for injury/trauma by housing status. Therefore, the null hypotheses for RQ3 that there no differences by housing status among young people aged 10 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex cannot be rejected. Table 10 provides the chi-square outputs for the NHAMCS dataset results that were used to help answer RQ3.

Table 10

Chi-square output: ED visits for injury/trauma compared to ED visit for other medical reasons by housing status

			Private Residence	Homeless	Unknown
Injury/Trauma	No	Count	2530	6	45

	Expected Count	2533.3	8.4	39.3
	% of Total	63.2%	0.1%	1.1%
	Adjusted Residual	-.8	-1.4	1.5
	Yes Count	1402	7	16
	Expected Count	1398.7	4.6	21.7
	% of Total	35.0%	0.2%	0.4%
	Adjusted Residual	.8	1.4	-1.5
Total	Count	3932	13	61
	Expected Count	3932.0	13.0	61.0
	% of Total	98.2%	0.3%	1.5%

RQ4: Are there differences by insurance or payer source among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex?

$H_0$4: There are no differences by insurance or payer source among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$4: There are statistically significant differences by insurance or payer source among young people aged 10 to 14, 15 to 19, and 20 to 24 who visit the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

Using the sample size of 4,006 the chi-square analysis showed that the observed and expected counts of those seen for injury/trauma within each payer group were significantly different for those who had private insurance and those who used Medicaid/CHIP. Specifically, those with private insurance were unrepresented among

those not seen for injury/trauma (observed less than expected) and overrepresented among those seen for injury/trauma (observed greater than expected). Those who used Medicaid/CHIP were overrepresented among those who were not seen for injury/trauma and underrepresented among those seen for injury/trauma. Therefore, the null hypotheses for RQ4 that there are no differences by insurance or payer source among young people aged 10 to 24 who visit the ED in the United States for assault-related injuries in 2015, after adjusting for sex can be rejected. Table 11 provides the chi-square outputs for the NHAMCS dataset results that were used to help answer RQ 4.

Table 11

Chi-square output: ED visits for injury/trauma compared to ED visit for other medical reasons by payer source

			Private Insurance	Medicaid/CHIP	Self-Pay
Injury/Trauma	No	Count	861	1161	256
		Expected Count	909.3	1102.2	270.5
		% of Total	24.5%	33.0%	7.3%
		Adjusted Residual	-3.5	4.2	-1.6
	Yes	Count	534	530	159
		Expected Count	485.7	588.8	159
		% of Total	15.2%	15.1%	4.5%
		Adjusted Residual	3.5	-4.2	1.6
Total		Count	1395	1691	415
		Expected Count	1395.0	1691.0	415.0
		% of Total	39.6%	48.0%	11.8%

Logistic Regression

Logistic regression with clustered robust standard errors was used to answer RQ5 to determine the relationship between the frequency of ED visits for assault-related injuries among young people aged 10 to 14, 15 to 19, and 20 to 24 after adjusting for sex. Logistic regression with clustered robust standard errors was also used to answer RQ6 to determine the relationship between the frequency of ED visits for assault-related injuries among young people aged 10 to 24 and racial and ethnic differences after adjusting for sex. Logistic regression with clustered robust standard errors was also used to answer RQ7 to determine the relationship between the frequency of ED visits for assault-related injuries among young people aged 10 to 24 and housing status after adjusting for sex. Lastly, logistic regression with clustered robust standard errors was used to answer RQ8 to determine the relationship between the frequency of ED visits for assault-related injuries among young people aged 10 to 24 and insurance or payer source after adjusting for sex.

RQ5: What is the relationship between young people's age group (10-14, 15-19, and 20-24). and visits to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex?

$H_0$5: There are no associations between individual's age group and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$5: There is a statistically significant association between individual's age group and visits to the emergency department in the United Sates for assault-related injuries in 2015, after adjusting for sex.

From the statistical analysis it was determined that the odds of being seen in the ED for assault-related injuries were not significantly higher for 15 to 19 year-olds and 20 to 24 year-olds compared to 10 to 14 year old young people. Therefore the null hypothesis for RQ5 that there are no associations between individual's age group and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex cannot be rejected. Table 12 provides the logistic regression with clustered robust standard errors outputs for the NHAMCS dataset results that were used to help answer research question five.

Table 12

Logistic regression output for age with 10 to 14 and female being used as reference categories

Age	Injury/Trauma	O.R.1	O.R. 2	95% C.I Lower	95% C.I. Upper
15-19 vs. 10-14	Yes	.965		.751	1.165
20-24 vs. 10-14	Yes	.806		.626	1.038
Patient Sex	Yes		2.351	1.968	2.807

a. Dependent Variable: Injury/Trauma (reference category = No)
b. Factors and covariates used in the computation are fixed at the following values: age = 20-24; Patient sex = 1.42

RQ6: What is the relationship between race and ethnicity and visit to the emergency department in the United States for assault-related injuries among young people aged 10 to 24 in 2015, after adjusting for sex?

$H_0$6: There are no associations between race and ethnicity and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$6: There is a statistically significant association between race and ethnicity and visits to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

When looking at the association of race and ethnicity, it was determined from the statistical analysis that the odds of young people between the ages of 10 and 24 being seen in the ED for assault-related injury was significantly lower among American Indian/Alaskan Native compared to White young people. However, this result may not be valid given that the percentage of American Indian/Alaskan Native represented less than 1 percent of the entire sample population. It was further determined that the odds of young people between the ages of 10 and 24 being seen in the ED for assault-related injuries were not significantly higher among Black young people compared to White young people. Therefore the null hypothesis for RQ6 that there are no associations between race and ethnicity and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex can be rejected. Table 13 provides the logistic regression with clustered robust standard errors outputs for the NHAMCS dataset results that were used to help answer RQ6.

Table 13

Logistic regression output for race and ethnicity with White and female being used as reference categories

Race	Injury/Trauma	O.R.1	O.R. 2	95% C.I Lower	95% C.I. Upper
Black/AA vs. White	Yes	.823		.652	1.039
Asian vs. White	Yes	1.100		.497	2.434
Native Hawaiian/ Pacific Islander vs. White	Yes	.441		.055	3.540
American Indian/ Alaskan Native vs. White	Yes	.280		.078	.998
Patient Sex	Yes		2.353	1.907	2.902

a. Dependent Variable: Injury/Trauma (reference category = No)
b. Factors and covariates used in the computation are fixed at the following values: race = American Indian/Alaskan Native; Patient sex = 1.41

RQ7: What is the relationship between housing status and visit to the emergency department in the United States for assault-related injuries among young people aged 10 to 24 in 2015, after adjusting for sex?

$H_0$7: There are no associations between housing status and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$7: There is a statistically significant association between housing status and visits to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

With respect to housing status, from the statistical analysis it was determined that the odds of young people in the targeted age group of being seen ED for assault-related injuries were not significantly higher for each housing status (homeless and unknown) compared to those living in a private residence. Therefore the null hypothesis for RQ7 that there are no associations between housing status and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex cannot be rejected. Table 14 provides the logistic regression with clustered robust standard errors outputs for the NHAMCS dataset results that were used to help answer RQ7.

Table 14

Logistic regression output for housing status with private residence and female being used as reference categories

Housing Status	Injury/Trauma	O.R.1	O.R. 2	95% C.I Lower	95% C.I. Upper
Homeless vs. Private Residence	Yes	.545		.128	2.322
Unknown vs. Private Residence	Yes	.628		.378	1.045
Patient Sex	Yes		2.378	1.985	2.849

a. Dependent Variable: Injury/Trauma (reference category = No)
b. Factors and covariates used in the computation are fixed at the following values: Housing Status = Unknown; Patient sex = 1.42

RQ8: What is the relationship between insurance or payer source and visit to the emergency department in the United States for assault-related injuries among young people aged 10 to 24 in 2015, after adjusting for sex?

$H_0$8: There are no associations between insurance or payer source and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

$H_1$8: There is a statistically significant association between insurance or payer source and visits to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex.

Lastly, from the statistical analysis it was determined that the odds of young people between the ages of 10 and 24 of being seen in the ED for assault-related injuries was significantly higher for those who were receiving Medicaid/CHIP compared to private insurance. Therefore, the odds of young people being seen in the ED for assault-related injuries with Medicaid/CHIP are .69 the odds of those with private insurance. Therefore the null hypothesis for RQ8 that there are no associations between insurance or payer source and visit to the emergency department in the United States for assault-related injuries in 2015, after adjusting for sex can be rejected. Table 15 provides the logistic regression with clustered robust standard errors outputs for the NHAMCS dataset results that were used to help answer RQ8.

Table15

Logistic regression output for payer source with private insurance and female being used as reference categories

Payer Source	Injury/Trauma	O.R.1	O.R. 2	95% C.I Lower	95% C.I. Upper
Medicaid/CHIP vs. Private Insurance	Yes	.696		.591	.820
Self Pay vs. Private	Yes	.869		.617	1.224

Insurance				
No Charge/Charity vs. Private Insurance	Yes	.367	.165	.820
Patient Sex	Yes	2.479	2.072	2.965

a. Dependent Variable: Injury/Trauma (reference category = No)
b. Factors and covariates used in the computation are fixed at the following values: pay = No Charge/Charity; Patient sex = 1.41

Summary and Transition

Section 3 presented the results provided by the analytical strategies used to analyze research questions one through four. Chi-square and logistic regression with clustered robust standard errors was used to analyze the differences and the relationships between age, sex, race and ethnicity, insurance or payer source and housing status and the likelihood of ED visits among young people between the ages of 10 and 24 for assault-related injuries. The chi-square analyses showed a significant difference among young people by age groups (10-14, 15-19, 20-24) who presented to the ED for assault-related injuries compared to those who were seen for other medical reasons. Based on these findings the null hypothesis could be rejected for RQ1. For RQs 3 and 4, the analysis showed no significant differences in the number expected to be seen in the ED for assault-related injuries by race or ethnic groups and by housing status. Therefore, the null hypothesis could not be rejected. For RQ4, the analysis showed a significant difference between young people ages 10 and 24 who are seen in the ED for assault-related injuries who were receiving Medicaid/CHIP health benefits compared to those with private health care coverage. The results demonstrated that those young people in the target age groups receiving Medicaid/CHIP were more at risk for being treated in the

ED for assault-relate injuries than those young people who had private health care coverage. Therefore, the null hypotheses for this research question could not be rejected. For RQs 5 through 8 examines the relationship between whether the injury was related to an injury/trauma (dependent) and age, race and ethnicity, residence, and payer source (independent variable) after adjusting for sex. For RQs 5 and 7 the logistic regression with clustered robust standard errors showed no relationship among age group (10-14, 15-19, 20-24) or housing status, and being seen in the ED for assault-related injuries. Therefore, the null hypothesis for both these research questions could not be reject. For RQs 6 and 8, the analysis showed a relationship between race and ethnicity and insurance and payer source, and being seen in the ED for assault-related injuries. Therefore, the null hypothesis for both these research questions could be rejected.

Section 4 is the final section of this document where I provide interpretations of the findings that I presented in section 3. In Section 4 I will further reference additional literature and provide a case for how these findings can be used to create social change and be used to tailor public health efforts to ensure that ED based youth violence prevention programs are created to meet the young person at their developmental and situational place. In addition, I will provide suggestions for future research on young people who seek health care for assault-related injuries in the ED, as well as, ED based youth violence prevention efforts.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

The purpose of this cross sectional quantitative study was to examine the characteristics of young people between the ages of 10 and 24 who seek medical care for assault-related injuries through the ED using secondary date from the CDC NAHMCS dataset. From this research I was able to provde evidence regarding the relationship between age, sex, race and ethnicity, insurance or payer source, and housing status and the likelihood of ED visits for assault-related injured among young people between 10 and 24 years old. I analyzed the relationship between age, sex, race and ethnicity, insurance or payer source, and housing status and the likelihood of ED visits among for assault-related injuries among young people in this targeted age group. My findings can provide public health professionals who work with young people who are seen in the ED for assault-related injuries with information that could be used to guide their efforts or improve existing ED-based youth violence programs.

Youth violence is a significant public health and social problem in the United States among young people between the ages of 10 and 24 (Masho et al., 2016). Violence threatens the lives of millions of people both physically and mentally, overburdens the health systems, undermines human capital formation, slows economic and social development, and leaves a damaging effect on families, communities, the healthcare, mental health, and justice systems, and the nation as a whole (Matjasko et al., 2016). EDs are an important societal safety net that serves patients who are acutely ill or are unable to obtain medical care through other traditional settings (Hankin et al., 2014).

In many communities, EDs are the only providers of medical services for those who are uninsured or under-insured (Hankin et al., 2014). Therefore, given the unique role EDs play in U.S. society, researchers have identified EDs as important sites for screening and prevention of public health problems such as youth violence (Hankin et al., 2014). Yet there are only there are only 35 documented ED-based youth violence prevention programs in operation nationwide, and the extent to which these programs meet the needs of their targeted populations remains under researched (Dicker 2016). The mjority of research has focused on non-ED-based samples, such as school-based programs, or has utilized national data on ED visits resulting from intentional injury that did not specifically look at young people 10 to 24 years old (Cunningham et al., 2014; Monuteaux et al., 2012). Additionally, research studies similar to this have solely focused on the relationship between firearm carriage and possession, substance use, mental illness or recidivism rates among young people who are seen in the ED for assault-related injuries, and not on the specific personal characteristics identified in this study (Carter et al., 2015; Haider et al., 2014).

In this section, I offer formal interpretations of the findings and discuss the limitations of this study while providing suggestions for future research on the topic. IN this section I will further outline the social and public health implication of this research and how it can be used to assist public health agencies and practitioners in identifying perpetrators and victims of youth violence in the ED to ultimately work towards preventing future violent acts (see Houry et al., 2009). I will conclude this section with an overview of public health's important role to ensure that all young people who are seen

in the ED for assault-related injuries regardless of age, sex, race and ethnicity, insurance or payer source, and housing status are equally represented in ED youth violence prevention programs that are intended to promote equitable social change while improving human, social, and community conditions (Benedict et al., 2017).

Interpretation of Findings

Housing Status

The results from the chi-square for this study showed that there was no significant difference between those young people aged 10 and 24 years-old who were seen for assault-related injuries in the ED and housing status. The logistic regression provided further evidence that the odds of young people in this targeted age group being seen in the ED for assault-related injuries were not significantly higher among those we were homeless compared to those living in a private residence. However, these findings are not in line with the findings of previous research presented in Section 1. Individuals and relationships are rooted within settings such as neighborhoods, places of residence, schools, and workplaces. The characteristics of these settings have the potential to influence how young people interact with each other including the use of violent and aggressive behaviors (David-Ferdon & Simon, 2014). Homelessness is connected with a significant amount of health inequalities including shorter life expectancy, higher morbidity, violence, and greater usage of acute hospital services such as ED visits (Stafford & Wood, 2017). Homeless young people have a unique set of risk behaviors compared to those young people who live in private residences. Young people living on the streets are often temporarily living in high crime rate areas and may also engage in

survival strategies that place them in harm's way (Yoder et al. 2014). Many homeless young people may engage in violent behaviors as survival strategies to secure basic necessities given that they lack economic resources or perceive themselves to have limited opportunities, and learn to protect themselves by carrying a weapon or by connecting with peers who can look after them (Crawford, Whitbeck, & Hoyt, 2011; Yoder et al., 2014). This may lead to serious violent or criminal behaviors such as prostitution, drug dealing, gang activities, or theft in order to earn income for food, shelter or other necessities, which ultimately increases their exposure and involvement with violence (Crawford et al., 2011). Results from Crawford et al.'s (2011) study showed that one-fifth of all homeless young people had seen someone killed, around half had been physically threatened, and almost one-fifth had reported being stabbed. The young people who participated in this study expressed living in a constant fear of violence. More than one-half expressed fearing being shot or stabbed, and nearly one-half feared sexual and/or physical assault. This constant exposure to violence may desensitize homeless young people towards violence, and the continuous vigilance and stress may increase their reactivity to conflict or potential dangers, increasing the likelihood of responding violently when they perceive a threat (Crawford et al., 2011).

Although the findings from this study did not show any significant differences between housing status and those young people who were seen in the ED for assault-related injuries, researchers have documented that homeless young people have been found to be among the highest users of ED services for assault-related injuries including repeat ED visits for the same injury (Mackelprang et al., 2015). In fact, according to

Mackelprang et al. (2015), homeless young people tend to be at greater risk for intentional or traumatic injuries from assault and have overall poor health status, lack health insurance coverage, do not have access to transportation and/or a telecommunications, have poor or no access to primary care services, live in a inner-city areas, struggle with chronic alcohol or drug use, and/or have a mental illness. These factors can be linked to the high rates of ED use and repeat visits for assault-related injuries among homeless young people (Mackelprang et al., 2015). Dicker (2016) indicated that finding stable housing reduces the risk for reinjures and repeat ED visit. Therefore, when young people seek health care in the ED for assault-related injuries it is critical to assess their housing status when developing an aftercare plan in order to effectively address their needs and provide them with services that will be sustainable and produce positive results.

Race and Ethnicity

The results from the chi-square for this study provided evidence that there was no significant difference between those young people aged 10 and 24 years-old who were seen for assault-related injuries in the ED and race and ethnicity. The logistic regression provided further evidence that the odds of young people in this targeted age group being seen in the ED for assault-related injuries were not significantly higher among Black young people compared to White young people. The results did provide evidence that the odds of young people between 10 and 24 being seen in the ED for assault-related injuries was significantly lower for American Indian/Alaskan Native compared to White young people. However, this result may not be valid given that the percentage of

American Indian/Alaskan Native represented less than 1% of the entire sample population. Unfortunately, these findings are also not in line with the findings of previous research presented in Section 1.

Youth violence is a complex and widespread health issue that can impact all racial and ethnic groups. However, according to Cooley-Strickland et al. (2009), ethnic minorities, especially African American young people, are at greater risk for youth violence. This increase in exposure and engagement in youth violence can be attributed to disproportionate exposure to conditions such as concentrated poverty, racism, limited educational and occupational opportunities, and other aspects of social and economic disadvantages that contribute to violence. These conditions can provide context for the disproportionate rates of homicide and nonfatal violence experienced among Black young people compared to White young people (Sheats et al., 2018). Sheats et al. (2018) suggest that it is important to not just focus on race and ethnicity as the risk factor for violence, but consider the association with socioeconomic risk factors that are disproportionately clustered among some racial and ethnic groups. Therefore, when developing youth violence prevention programs, it is important to consider societal conditions that are disproportionately experienced by Black young people compared to White young people (Sheats et al., 2018). Although the findings from this study did not show any significant differences between race and ethnicity and those young people who were seen in the ED for assault-related injuries, it is still important to ensure that prevention efforts are culturally diverse and address the risk factors that exists for

minority young people who live in low resource neighborhoods and with high level of community violence (Carter et al., 2017).

Age

When looking at the frequency of young people being seen in the ED for assault related injuries by age, the results from this study showed a significant difference between young people aged 20 and 24 (1,814) and young people between ages 10 and 14 (911). Additionally, young people between 15 and 19 represented 1,359 of the sample population. These results support the findings of David-Ferdon et al. (2018) study where they used data from NEISS-AIP to examine trends in ED visits among young people aged 10 to 24 for assault-related injuries. These authors also found that the majority of young people were between 20 and 24 years-old (1377), followed by 15 to 19 years-old (1160), and then 10 to 14 years-old (729). David-Ferdon et al. (2018) study results mirrored the results of this study. Young people can be taught skills that help them deal with violent or challenging situations. They can be provided with skills to improve or develop their self-esteem that is needed to solve differences without violence. Young people can also be taught about the situations or actions that might result in their use of violence, such as associating with violent peers, using alcohol or drugs, and possessing a firearm or other weapons. Services can be wrapped around their whole family and the family can be provided with a mentor that serves as a role model (Bushman et al., 2018). By providing family members or caregivers with knowledge and skills regarding child development, supervision, communication, and discipline can support healthy relationships that decrease young people from engaging in violent behaviors and strengthen family systems

(Blackman, 2015). However, it is critical to have an understanding and/or identify the point in the young person's developmental pathway when aggressive behaviors and the inability to regulate emotions started, so that interventions can be age specific to prevent the progression of violent behaviors as the young person ages (Sitnick et al., 2018).

Insurance or Payer Source

The results from the statistical analysis provided evidence that the odds of young people between the ages of 10 and 24 of being seen in the ED for assault-related injuries was significantly higher for those receiving Medicaid/CHIP compared to those covered by private health coverage. The chi-square provided further evidence that the observed and expected counts of those seen for injury/trauma within each payer group were significantly different for those who had private insurance and those who used Medicaid/CHIP. These results support the findings of Cunningham et al. (2014), Benedict et al. (2017), and Carter et al. (2017) that either parent or self-receipt of public assistance (Medicaid/CHIP) was a statistically significant predictor for current and future assault-related injury ED visits. These authors associated their findings to the strong role of neighborhoods (high rates of crime and violence, gang presence, and poverty) and family characteristics (family challenges, family views on using violence a method to solve conflict) in determining young people's conflict resolution and coping skills and lack of community resources. These findings thus provide public health practitioners with an understanding that is supported by Carter et al. (2017), that insurance or payer source should be considered a proxy for the young person's social economic status that can either contribute to their risk or protect them from engaging in violent behaviors.

Applicability to Social Ecological Model

The SEM was identified as the theoretical framework used for this study. The SEM was chosen given that it has been effectively used by other researchers to understand factors in young people's lives that may place them at risk for or help protect them from experiencing or perpetrating violence (Matjasko, et al., 2016). The SEM framework takes into consideration the complex interplay between individual, relationship, community, and societal factors, which allow a better understanding for the range of factors that, put people at risk for or protect them from being a victim of or engaging in violence. The overlapping rings in the SEM illustrate how factors at one level can influence factors at another level. Therefore, this model suggests that in order to prevent violence and produce sustainable prevention efforts over time it is important to act across multiple levels of the model at the same time instead of single interventions (CDC, 2018b).

The first level of influence is intrapersonal level, which consists of personal factors that may influence how individuals behave and increase the likelihood of becoming a victim of or perpetrator of violence (CDC, 2018b; WHO, 2018). Some of these factors could be age, sex, educational level, income, history of being a victim of child abuse or neglect, psychological or personality disorders, or history of displaying disruptive behaviors (Sitnick et al., 2018). RQs 1 (age) and 2 (race and ethnicity) were both tested at this level. The second level of influence is interpersonal, which deals with culture of community, formal and informal networks and supports. For example, a young person's closest social circle of friends, family members, and peers can influence their

behaviors and contribute to their experiences both positively or negatively, and these relationships can increase the risk of a young person experiencing or engaging in violence (CDC, 2018b). The dependent variable used to answer all four research questions was assault-related injury; therefore, RQs 1 through 4 were all tested at this level. The third level of influence is community, which consists of community settings such as: schools, neighborhoods, workplaces, or recreational programs where social relationships occur or are developed and identifies characteristics of these settings that can influence young people in becoming a victim of or engaging in violence (CDC, 2018b). Young people who reside in disadvantaged neighborhoods are exposed to more community violence, drugs, and firearms which increases their risk of engaging in violence compared to their peers who reside in more advantaged neighborhoods (Stoddard et al., 2014; WHO, 2018). Additionally, neighborhoods where norms and history of adult violence tend to increase rates of youth violence (Stoddard et al., 2014). Dicker (2014) further provides an example of a young person who was a participant in an ED based youth violent prevention program was returning home from a job developed by his violence prevention program was shot as he was entering his own home. This example further supports how community factors play a strong role with this challenging topic. RQ3 (housing status) was tested at this level. The fourth and final level of influence is public policies, which deals with the broad societal factors that create a climate in which violence is either encouraged or inhibited. These factors can include, social and cultural norms that support violence as a tolerable option to address conflict, or support male dominance over women, and economic, educational, and social policies that

maintain socioeconomic inequalities between people (CDC, 2018b; WHO, 2018). RQ4 (payer sources) was tested at this level.

Many interventions that target youth violence are limited by an approach that solely focuses on individual or relationship level factors. Researchers suggest that prevention initiatives should attend to the accumulation of risk factors across multiple levels of the social ecology since youth with multiple factors are more likely to turn to violence compared to those who are exposed to only one risk factor (Matjasko, et al., 2016). The findings of this study provide further validation regarding the importance of developing multifaceted strategies at the intrapersonal, interpersonal, community, and public policies levels to promote sustainable results and increase the possibility of community-wide decline in youth people engaging in violent behaviors.

Limitations of the Study

NHAMCS is an annual, federally funded survey of a national representative, multistage, stratified sample of hospital visits, including ED visits, in the United States. The data is collected in real-time by either trained local hospital staff or by a Census Bureau field representative, and is publicly available on the CDC website (Mcnaughton, Self, & Pines, 2014). Despite the quality of the data and close adherence to the data analysis plan, the study did have some limitations. One of the limiting factors of this study is that hospital participation in the NHAMCS survey is voluntary and the hospitals that choose to participate could be systematically different in some way compared to hospitals that declined to participate. Additionally, the NHAMCS survey sample excluded data gathered from Federal, military, and Veterans Administration hospitals

(CDC, 2018a). Therefore, the survey may not have captured EDs with higher rates of assault-related injuries or they may not be a true representation of socioeconomic factors that contribute to young people's engagement in violent behaviors.

Although the systematic sampling of a national population and ensuring that all participating hospital staff are extracting data the same way is a great strength of NHAMCS. The quality of the data abstraction process can still be considered a limiting factor. EDs often have different process for patient flow and admissions, some EDs have observation units while others use alternative locations for patient evaluations, and there is variability in when the transfer of care from the ED to the hospital team occurs. For example, one hospital might classify a patient with a gunshot wound who is admitted to an ED observation unit disposition as an admission, while another hospital might classify an identical patient as an ED treat and release (McNaughton et al., 2014). Another example is the reason for the ED visit or reason behind the injury is recorded incorrectly, or the patient them self were not truthful about the cause of their injury. These differences in coding and categorization of disposition from the ED or inaccurate documentation of the root cause of injury could lead to misclassification, and may not provide a true representation of the population that is being seen in the EDs for assault-related injuries. Moving forward, it might be useful for NHAMCS to develop detailed definitions of ED arrival, ED discharge, observational units, and reason for visit to ensure all hospitals are coding and categorizing in the same manner (McNaughton et al., 2014). Additionally, since this study relied solely on data abstracted from the NHAMCS data set, many variables or useful data that might have been considered in this study was not

available. For example, education level, parental supports, family history of violence, injury severity, and repeat ED visit for assault-related injuries were not available in the NHAMCS dataset; therefore, they could not be included in the statistical analysis of this study. The inclusion of these variables could have added addition value to this study when exploring potential risk and/or protective factors for young people who are seen in the ED for assault-related injuries.

Recommendations for Future Research

The emphasis of this study was to evaluate the relationship between age, sex, race and ethnicity, insurance or payer source, and housing status and the likelihood of young people between the ages of 10 and 24 seek medical care for assault-related injuries in the ED. These findings can be used to guide the development of ED based programs or improve existing programs. For example, this study identified that homeless young people are at greater risk for engaging in violent behaviors and using the ED for their health care needs compared to those young people who reside in stable housing (Crawford et al., 2011). The findings support the value in ensuring ED interventions address financial resources, and consider the possible social, emotional, and cognitive challenges associated with young people living on the street (Yoder et al., 2014) Future research related to this topic should focus on examining existing ED based youth violence prevention programs to determine whether or not youth violence interventions in the ED is effective. Currently there are only 35 documented ED based youth violence prevention programs in operation nationwide, and the extent to which these programs meet the needs of their targeted population remains under researched (Dicker 2016).

Following violently injured young people seen in the ED requires extensive effort and dedication given the episodic connection to care and hard to reach population. Understanding this population and the contact efforts are critical to successfully completing a study that examines the effectiveness of an ED based youth violence prevention program. The results of this study provide future researchers with a better understanding of the demographics of young people who seek care in the ED for assault releated injuries.

The success of an ED based youth violence prevention program also rests on the capacity to select evidence-based apporaches that help achieve progamatic and community goals, and having an infrastructure that enables the implemenation and sustainability of effective approaches. There are various ED based youth violence prevention models that are are being diseminated; however, more research is necessary to demonstrate their value and understand the outcomes. Further research is critical in order to gain buy in and funding support for additional programs throughout the county (Dicker 2016).

Implications for Professional Practice and Social Change

Implications for Public Health Practice

This study has shown that youth violence is not just influenced by one factor but an active interrelationship between individual, relationship, community and societal factors. Many young people and communities have accepted the grim facts that youth violence is unavoidable and have accepted youth violence as a societal reality (David-Ferdon & Simon, 2014). Youth violence does not have to be inevitable, with investment

into monitoring, understanding, and prevention initiatives youth violence can be preventable. Public Health professionals cannot just respond to violence as it happens as the public health burden of youth violence is high and the potential to prevent youth violence is great (David-Ferdon & Simon, 2014). This research can be added to the body of knowledge about young people who are seen in the ED for assault-related injuries, and can guide the implementation of sound ED based interventions or improve existing ED based programs to ensure the programs promote long-term stability and resilience, and reduce the impact from youth violence (Cunningham et al., 2014). Although the studies main focus was to examine the characteristics of young people who are seen in the ED for assault-related injuries to guide the development of effective ED based youth violence prevention programs. The findings can be used by counseling professionals, school district personnel, community providers, and policymakers to ensure interventions systematically and holistically address the needs of young people in order to promote a nonviolent climate for individuals, families, and communities (Cunningham et al., 2015). Additionally, public health will continue to have a role in addressing and reducing youth violence using results from studies like this one to direct their efforts.

Implications for Positive Social Change

Social and cultural norms are rules or expectations of behaviors and thoughts that are based on shared beliefs within a specific culture or social group. While often times unspoken, norms offer social standards for appropriate and inappropriate behaviors that govern what it or what is not acceptable in interactions with other people (WHO, 2018). Social and cultural norms can be highly influential over individual behaviors or attitudes

in a broad variety of contexts, including the use of violence and prevention, given that norms can create an environment that can either protect or place a young person at risk for violence (WHO, 2018). Preventing violence is a complex public health problem that involves social, economic and behavioral components, all of which need to be addressed to improve population health, change social and cultural norms regarding violence, and promote positive social change (Dubow et al., 2016).

For lasting social change to occur, it is critical that research, like this study, be used to improve professionals' understanding of risk and protective factors among young people who are seen in the EDs for assault-related injuries. This study provides public health professionals added knowledge regarding the relationship between the characteristics (age, sex, race and ethnicity, insurance or payer source, and housing status) and those young people between the ages of 10 and 24 who seek health care in the ED for assault-related injuries. Having this better understanding has the potential to lead modifications and/or development of public health interventions that promote social norms that value safely, equality, human rights instead of valuing power over another and accepting violent behaviors as normal. Interventions can further promote positive social change by building off of young people's strengths and directing their energy toward success and away from a self-filling prophecy that they have no alternative options. This support can help them build their self-esteem and allow them to actively contribute in the development of their life successes and surroundings.

In the long term, this study provides additional evidence-based information that supports the value in reducing youth violence across the nation, the results can be used to

establish stakeholder buy-in, promotes social policy change, and lead to the development of an effective national model to improve youth public health and change the social norms regarding youth violence.

Conclusion

In the United States, public health policy has historically viewed youth violence as a moral or behavioral problem that should be addressed through the use of punishment after the fact (Rabarison et al., 2015). However, there has been a growth in evidence-based research suggesting that violent behaviors are an interaction between individual, family, social, cultural, and economic influences, including failures in the developmental process (Matjasko et al., 2016). Since violence is considered the result from the complex interplay of multiple factors at the individual, relationship, community and societal level, it is critical that prevention and intervention initiatives are equally nuanced, addressing root causes rather than just symptoms (Office of Juvenile Justice and Delinquency Prevention [OJJDP], 2016). Furthermore, according to OJJDP (2016) the most effective violence prevention strategies are those that have developmentally and culturally based programming tailored to the individual, and address both risk and protective factors. For example, communities greatly influence health, education, and behavioral outcomes of young people and can be both risk and protective factors. Therefore, effective ED based prevention and intervention strategies need to account for the impact impoverished communities have on young people, such as environmental hazards, high crime rates and/or gang presence, poor quality housing and/or school systems, poor family supports or family history of violence, and racial segregation (OJJDP, 2016).

EDs play a unique role in our society, and researchers have identified EDs as important sites for screening and prevention of public health problems such as youth violence (Hankin et al., 2014). The goal of this study was to put in to context and address the existing gaps in the literature regarding the characteristics (age, sex, race and ethnicity, insurance or payer source, and housing status) and young people between the ages of 10 and 24 who saught out care in the ED for unintentional assault-related injuries. If EDs are to develop effective youth violence prevention programs, it is critical to understand who is presenting to the ED with acute viloent injury and what independent characteristics distinguish them from their peers (Monuteaux et al., 2012). Youth violence can take on various forms such as, fighting, bullying, gang violence, and threats of harm. Regardless of the form, the consequences are youth involvement in violence is felt by everyone including, the victim, families, communities, schools, workforce, and mental health, heath care and the justice systmes. People tend to think about who should be working to reduce youth violence, or fingers are poted to someone else. However, the reality is that youth violence is a public health problem that touches everyone, and everyone has a role to play in prevention efforts including EDs.

Most young people are on the path to leading healthy, productive, and secure adult lives; however, about 25% of young people are at risk of entering a cycle of violence (Dubow et al., 2016). The information provided in this study can provide ED professionals to include: physicians, social workers, nurses, and case managers with detailed information regarding age, sex, race and ethnicity, insurance status or payer sources, and housing status as a proxy for poverty level that can direct and guide public

health interventions to promote social norms that value equality, safety, and human rights instead of valuing power over another and acceptance of violent behaviors as normal. As a result, future public health efforts can be tailored to ensure that all young people who are seen in the ED for assault-related injuries regardless of age, sex, race, insurance or payer source, or housing status are equally represented in youth violence prevention programs intended to promote equitable social change while improving human, social, and community conditions. In the long term, by providing additional evidence-based information that supports the value in reducing youth violence across the nation, the results of this study may be used to establish stakeholder buy-in, support social policy change, and lead to the development of an effective national model to improve youth public health.

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Appendix: NAHMCS 2015 Patient Record Questionnaire

NAMCS-73
(12-17-2014)

SAMPLE

NATIONAL AMBULATORY MEDICAL CARE SURVEY
2015 PATIENT RECORD

Form Approved: OMB No. 0920-0234; Expiration date 12/31/2017

NOTICE – Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing burden to: CDC/ATSDR Information Collection Review Office, 1600 Clifton Road, MS D-74, Atlanta, GA 30333, ATTN: PRA (0920-0234).

Assurance of confidentiality – All information which would permit identification of an individual, a practice, or an establishment will be held confidential; will be used for statistical purposes only by NCHS staff, contractors, and agents only when required and with necessary controls; and will not be disclosed or released to other persons without the consent of the individual or establishment in accordance with section 308(d) of the Public Health Service Act (42 USC 242m) and the Confidential Information Protection and Statistical Efficiency Act (PL-107-347).

PATIENT INFORMATION

Patient medical record No.

Date of visit
Month | Day | Year 2 0 1

ZIP Code *Enter "1" if homeless.*

Date of birth
Month | Day | Year

Age ☐ 1 Years ☐ 2 Months ☐ 3 Days

Sex
☐ 1 Female – Is patient pregnant?
☐ 1 Yes - *Specify gestation week – Gestation week refers to the number of weeks plus 2 that the offspring has spent developing in the uterus* →
☐ 2 No
☐ 2 Male

Ethnicity
☐ 1 Hispanic or Latino
☐ 2 Not Hispanic or Latino

Race – *Mark (X) all that apply.*
☐ 1 White
☐ 2 Black or African American
☐ 3 Asian
☐ 4 Native Hawaiian or Other Pacific Islander
☐ 5 American Indian or Alaska Native

Expected source(s) of payment for THIS VISIT – *Mark (X) all that apply.*
☐ 1 Private insurance
☐ 2 Medicare
☐ 3 Medicaid or CHIP or other state-based program
☐ 4 Workers' compensation
☐ 5 Self-pay
☐ 6 No charge/Charity
☐ 7 Other
☐ 8 Unknown

Tobacco use
☐ 1 Not current
☐ 2 Current
☐ 3 Unknown
Prior tobacco use
☐ 1 Never
☐ 2 Former
☐ 3 Unknown

BIOMETRICS/VITAL SIGNS

Height ____ ft ____ in
OR
____ cm

Weight ____ lb ____ oz
OR
____ kg ____ gm

Temperature ____ ☐ 1 °C ☐ 2 °F

Blood pressure – *If multiple measurements are taken, record the last measurement.*
Systolic ____ / Diastolic ____

REASON FOR VISIT

List the first 5 reasons for visit (i.e., symptoms, problems, issues, concerns of the patient) in the order in which they appear. Start with the chief complaint and then move to the patient history for additional reasons.

(1) Most important
(2) Other
(3) Other
(4) Other
(5) Other

Major reason for this visit
☐ 1 New problem (<3 mos. onset)
☐ 2 Chronic problem, routine
☐ 3 Chronic problem, flare-up
☐ 4 Pre-surgery
☐ 5 Post-surgery
☐ 6 Preventive care (e.g., routine prenatal, well-baby, screening, insurance, general exams)

INJURY

Is this visit related to an injury/trauma, overdose/poisoning, or adverse effect of medical/surgical treatment?
☐ 1 Yes, injury/trauma
☐ 2 Yes, overdose/poisoning
☐ 3 Yes, adverse effect of medical or surgical treatment or adverse effect of medicinal drug
☐ 4 No
☐ 5 Unknown
SKIP to Continuity of Care

Did the injury/trauma, overdose/poisoning or adverse effect occur within 72 hours prior to the date and time of this visit?
☐ 1 Yes
☐ 2 No
☐ 3 Unknown
☐ 4 Not applicable
For adverse effect SKIP to Cause ↙

Is this injury/trauma or overdose/poisoning intentional or unintentional?
☐ 1 Intentional →
☐ 2 Unintentional (e.g., accidental)
☐ 3 Intent unclear

What was the intent of the injury/trauma or overdose/poisoning?
☐ 1 Suicide attempt with intent to die
☐ 2 Intentional self-harm without intent to die
☐ 3 Unclear if suicide attempt or intentional self-harm without intent to die
☐ 4 Intentional harm inflicted by another person (e.g., assault, poisoning)
☐ 5 Intent unclear

Cause of injury/trauma, overdose/poisoning, or adverse effect of medical/surgical treatment – *Describe the place and circumstances that preceded the injury, poisoning, or adverse effect. Examples:* **1 –** *Injury (e.g., patient fell while walking down stairs at home and sprained her ankle; patient was bitten by a spider);* **2 –** *Poisoning (e.g., 4 year old child was given adult cold/cough medication and became lethargic; child swallowed large amount of liquid cleanser and began vomiting);* **3 –** *Adverse effect (e.g., patient developed a rash on his arm 2 days after taking penicillin for an ear infection)*

CONTINUITY OF CARE

Are you the patient's primary care provider?
☐ 1 Yes – *SKIP to* →
☐ 2 No
☐ 3 Unknown

Was patient referred for this visit?
☐ 1 Yes
☐ 2 No
☐ 3 Unknown

Has the patient been seen in this practice before?
☐ 1 Yes, established patient –
How many past visits to this practice in the last 12 months? *(Exclude this visit.)*
____ Visits
☐ 2 No, new patient

DIAGNOSIS

As specifically as possible, list diagnoses related to this visit including chronic conditions.

(1) Primary diagnosis
(2) Other
(3) Other
(4) Other
(5) Other

Regardless of the diagnoses previously entered, does the patient now have – *Mark (X) all that apply.*

☐ 1 Alcohol misuse, abuse or dependence
☐ 2 Alzheimer's disease/Dementia
☐ 3 Arthritis
☐ 4 Asthma
☐ 5 Autism spectrum disorder
☐ 6 Cancer
☐ 7 Cerebrovascular disease/History of stroke (CVA) or transient ischemic attack (TIA)
☐ 8 Chronic kidney disease (CKD)
☐ 9 Chronic obstructive pulmonary disease (COPD)
☐ 10 Congestive heart failure (CHF)
☐ 11 Coronary artery disease (CAD), ischemic heart disease (IHD) or history of myocardial infarction (MI)
☐ 12 Depression
☐ 13 Diabetes mellitus (DM), Type 1
☐ 14 Diabetes mellitus (DM), Type 2
☐ 15 Diabetes mellitus (DM), Type unspecified
☐ 16 End-stage renal disease (ESRD)
☐ 17 History of pulmonary embolism (PE), or deep vein thrombosis (DVT), or venous thromboembolism (VTE)
☐ 18 HIV Infection/AIDS
☐ 19 Hyperlipidemia
☐ 20 Hypertension
☐ 21 Obesity
☐ 22 Obstructive sleep apnea (OSA)
☐ 23 Osteoporosis
☐ 24 Substance abuse or dependence
☐ 25 None of the above

Complete if Asthma box is marked.

Asthma severity:
☐ 1 Intermittent
☐ 2 Mild persistent
☐ 3 Moderate persistent
☐ 4 Severe persistent
☐ 5 Other – *Specify* ↙
☐ 6 None recorded

Asthma control:
☐ 1 Well controlled
☐ 2 Not well controlled
☐ 3 Very poorly controlled
☐ 4 Other – *Specify* ↙
☐ 5 None recorded

SERVICES

Mark (X) all Examinations/Screenings, Laboratory tests, Imaging, Procedures, Treatments, Health education/Counseling, and Other services ORDERED OR PROVIDED.

1 ☐ NO SERVICES

Examinations/Screenings:

2 ☐ Alcohol misuse screening (includes AUDIT, MAST, CAGE, T-ACE)
3 ☐ Breast
4 ☐ Depression screening
5 ☐ Domestic violence screening
6 ☐ Foot
7 ☐ Neurologic
8 ☐ Pelvic
9 ☐ Rectal
10 ☐ Retinal/Eye
11 ☐ Skin
12 ☐ Substance abuse screening (includes NIDA/NM ASSIST, CAGE-AID, DAST-10)

Laboratory tests:

13 ☐ Basic metabolic panel (BMP)
14 ☐ CBC
15 ☐ Chlamydia test
16 ☐ Comprehensive metabolic panel (CMP)
17 ☐ Creatinine/Renal function panel
18 ☐ Culture, blood
19 ☐ Culture, throat
20 ☐ Culture, urine
21 ☐ Culture, other
22 ☐ Glucose, serum
23 ☐ Gonorrhea test
24 ☐ HbA1c (Glycohemoglobin)
25 ☐ Hepatitis testing/Hepatitis panel
26 ☐ HIV test
27 ☐ HPV DNA test
28 ☐ Lipid profile
29 ☐ Liver enzymes/Hepatic function panel
30 ☐ Pap test
31 ☐ Pregnancy/HCG test
32 ☐ PSA (prostate specific antigen)
33 ☐ Rapid strep test
34 ☐ TSH/Thyroid panel
35 ☐ Urinalysis
36 ☐ Vitamin D test

Imaging:

37 ☐ Bone mineral density
38 ☐ CT scan
39 ☐ Echocardiogram
40 ☐ Ultrasound
41 ☐ Mammography
42 ☐ MRI
43 ☐ X-ray

Procedures:

44 ☐ Audiometry
45 ☐ Biopsy
Biopsy provided? 1 ☐ Yes 2 ☐ No
46 ☐ Cardiac stress test
47 ☐ Colonoscopy
Colonoscopy provided? 1 ☐ Yes 2 ☐ No
48 ☐ Cryosurgery (cryotherapy)/ Destruction of tissue
49 ☐ EKG/ECG
50 ☐ Electroencephalogram (EEG)
51 ☐ Electromyogram (EMG)
52 ☐ Excision of tissue
Excision of tissue provided? 1 ☐ Yes 2 ☐ No
53 ☐ Fetal monitoring
54 ☐ Peak flow
55 ☐ Sigmoidoscopy
Sigmoidoscopy provided? 1 ☐ Yes 2 ☐ No
56 ☐ Spirometry
57 ☐ Tonometry
58 ☐ Tuberculosis skin testing/PPD
59 ☐ Upper gastrointestinal endoscopy/EGD
EGD provided? 1 ☐ Yes 2 ☐ No

Treatments:

60 ☐ Cast/splint/wrap
61 ☐ Complementary and alternative medicine (CAM)
62 ☐ Durable medical equipment
63 ☐ Home health care
64 ☐ Mental health counseling, excluding psychotherapy
65 ☐ Occupational therapy
66 ☐ Physical therapy
67 ☐ Psychotherapy
68 ☐ Radiation therapy
69 ☐ Wound care

Health education/Counseling:

70 ☐ Alcohol abuse counseling
71 ☐ Asthma
72 ☐ Asthma action plan given to patient
73 ☐ Diabetes education
74 ☐ Diet/Nutrition
75 ☐ Exercise
76 ☐ Family planning/Contraception
77 ☐ Genetic counseling
78 ☐ Growth/Development
79 ☐ Injury prevention
80 ☐ STD prevention
81 ☐ Stress management
82 ☐ Substance abuse counseling
83 ☐ Tobacco use/Exposure
84 ☐ Weight reduction

Other services not listed:

85 ☐ Other service – *Specify*

Up to 5 other services can be listed.

MEDICATIONS & IMMUNIZATIONS

Were any prescription or non-prescription drugs ORDERED or PROVIDED (by any route of administration) at this visit? *Include Rx and OTC drugs, immunizations, allergy shots, oxygen, anesthetics, chemotherapy, and dietary supplements that were ordered, supplied, administered, or continued during this visit. Include drugs prescribed at a previous visit if the patient was instructed at THIS VISIT to continue with the medication.*

1 ☐ Yes
2 ☐ No

List up to 30 medications.

		New	Continued
(1)		1 ☐	2 ☐
(2)		1 ☐	2 ☐
(3)		1 ☐	2 ☐
(4)		1 ☐	2 ☐
(5)		1 ☐	2 ☐
↓		1 ☐	2 ☐
		1 ☐	2 ☐
(30)		1 ☐	2 ☐

PROVIDERS

Mark (X) all providers seen at this visit.

1 ☐ Physician
2 ☐ Physician assistant
3 ☐ Nurse practitioner/ Midwife
4 ☐ RN/LPN
5 ☐ Mental health provider
6 ☐ Other
7 ☐ None

TIME SPENT WITH PROVIDER

Minutes

Enter estimated time spent with sampled provider – Enter 0 if no provider seen

VISIT DISPOSITION

Mark (X) all that apply.

1 ☐ Return to referring physician
2 ☐ Refer to other physician
3 ☐ Return in less than 1 week
4 ☐ Return in 1 week to less than 2 months
5 ☐ Return in 2 months or greater
6 ☐ Return at unspecified time
7 ☐ Return as needed (p.r.n.)
8 ☐ Refer to ER/Admit to hospital
9 ☐ Other

TESTS

	Was blood for the following laboratory tests drawn on the day of the sampled visit or during the 12 months prior to the visit?	Most recent result	Date of test
1	Total Cholesterol — 1 ☐ Yes → 2 ☐ None found	mg/dL	Month Day Year 2 0 1
2	High density lipoprotein (HDL) — 1 ☐ Yes → 2 ☐ None found	mg/dL	Month Day Year 2 0 1
3	Low density lipoprotein (LDL) — 1 ☐ Yes → 2 ☐ None found	mg/dL	Month Day Year 2 0 1
4	Triglycerides (TGs) — 1 ☐ Yes → 2 ☐ None found	mg/dL	Month Day Year 2 0 1
5	HbA1c (A1C) (Glycohemoglobin) — 1 ☐ Yes → 2 ☐ None found	. %	Month Day Year 2 0 1
6	Blood glucose (BG) — 1 ☐ Yes → 2 ☐ None found	mg/dL	Month Day Year 2 0 1
7	Serum creatinine — 1 ☐ Yes → 2 ☐ None found	. mg/dL	Month Day Year 2 0 1

CPT CODES

Enter Current Procedural Terminology (CPT) or Healthcare Common Procedure Coding System (HCPCS) code. Up to 18 CPT codes can be listed.

NAMCS-73 (12-17-2014)